Microsoft Dynamics CRM 2011 Walkthrough

Part 2: Solution & system management

Jukka Niiranen

http://niiranen.eu/crm

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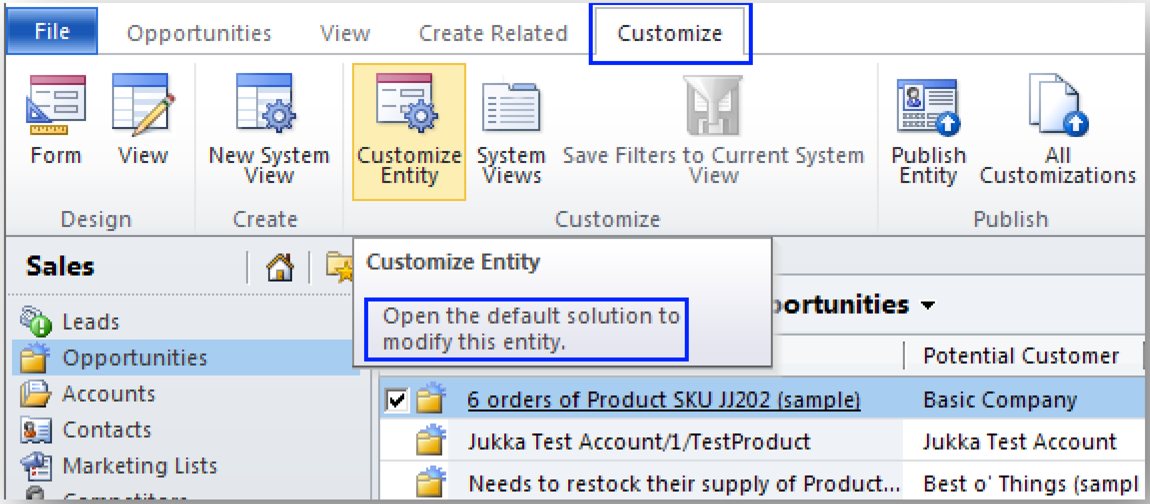
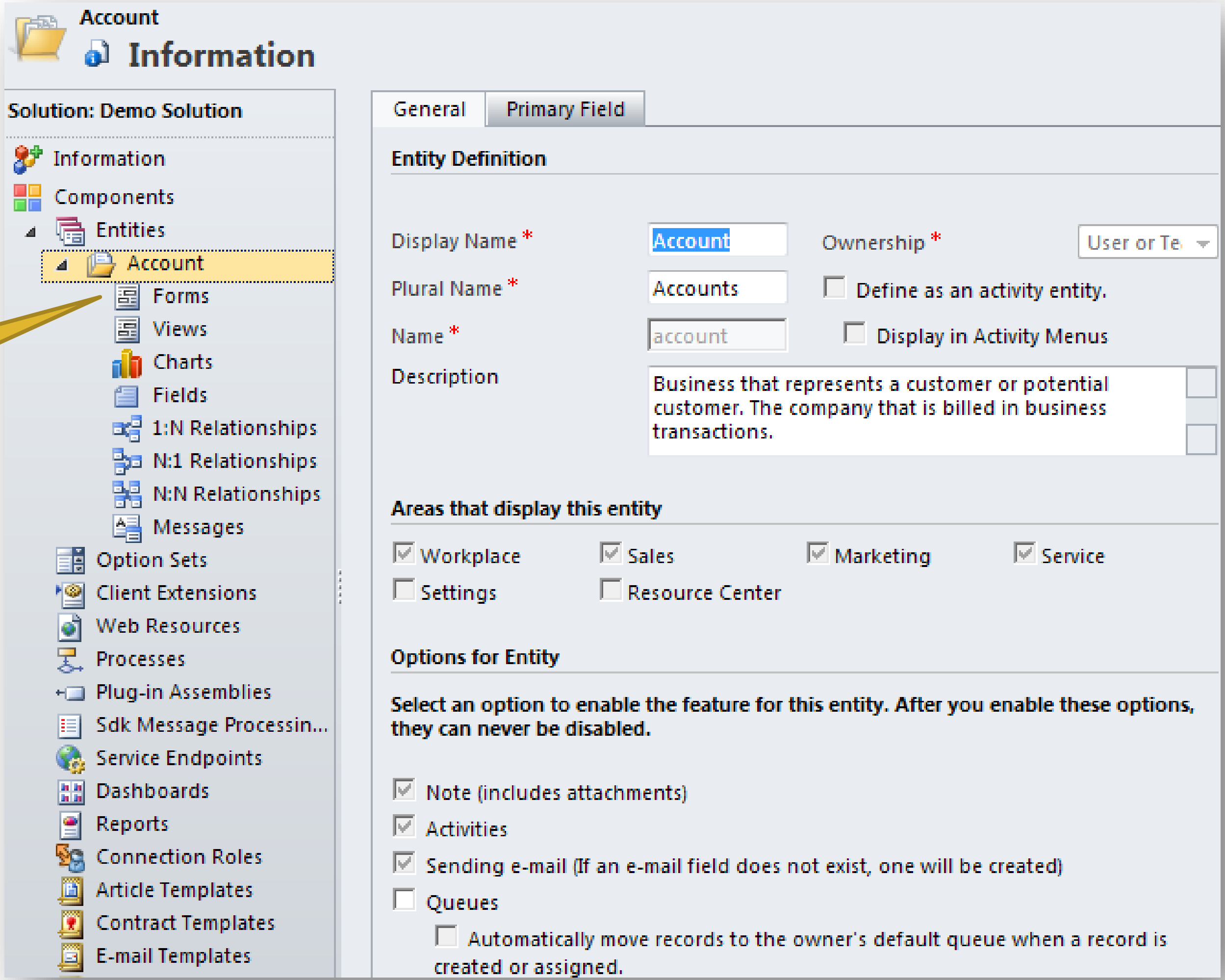
Customization Menus

Ribbon access to Customizations



- Administrators now have direct access to entity, form and view customizations from the main window or detail form of a record
- Note: these shortcuts will always take you to the default solution, access to settings menu is needed for selecting which solution is to be customized

Hierarchical navigation



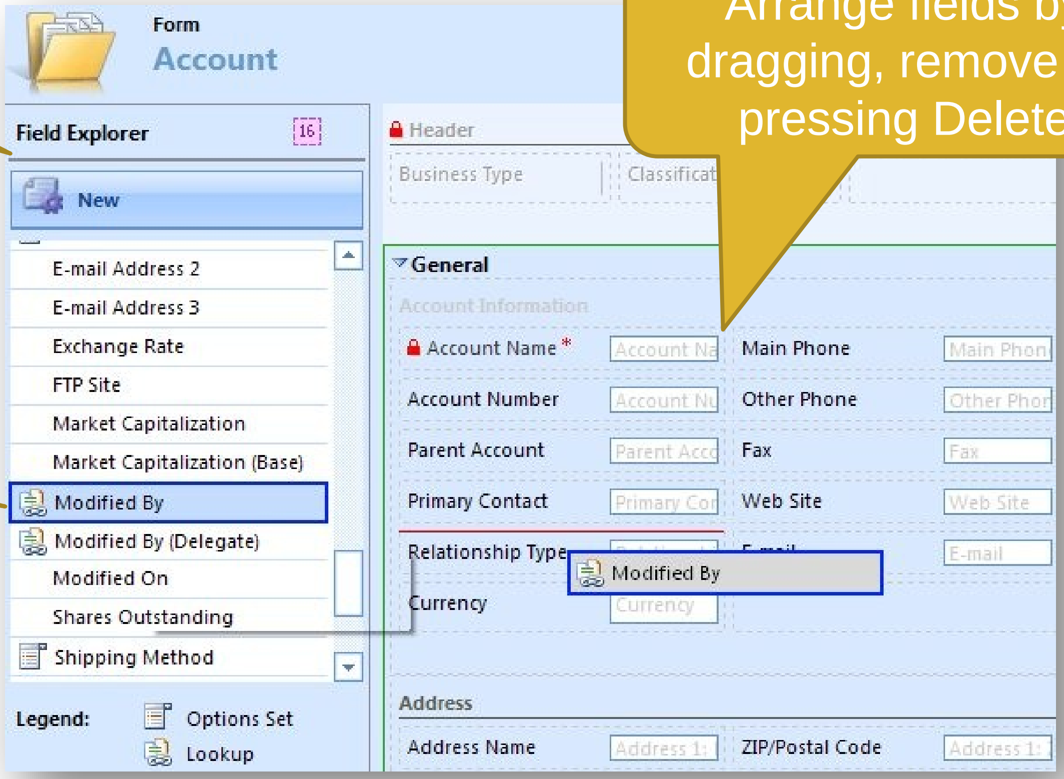
Solution components can be accessed from the hierarchical menu, thus reducing pop-up windows in the customization screen

Drag & drop form editing

Field Explorer lists available fields and allows creation of new attributes

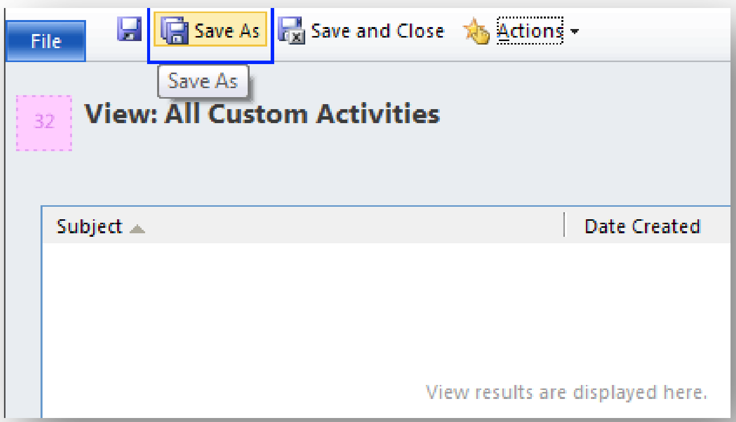
Drag fields directly to the form

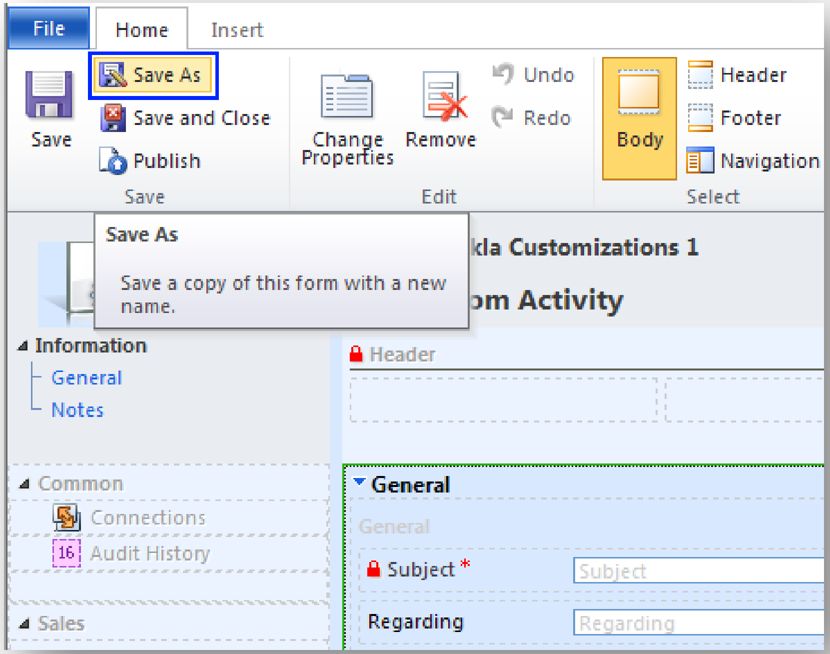
Arrange fields by dragging, remove by pressing Delete



Save As -options

- Available for views, forms, charts
- Quick way to replicate existing configurations when adding new views and forms





UI customization options

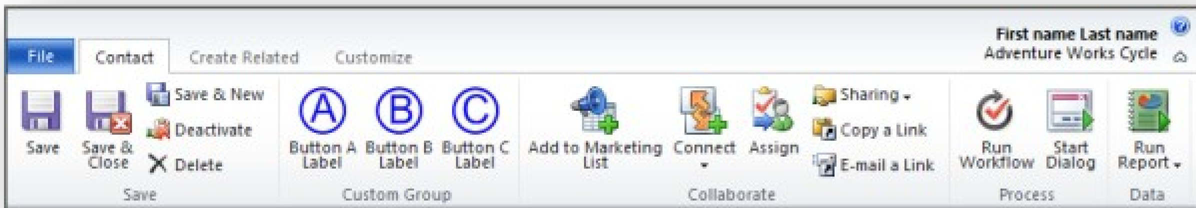
Ribbon customization

- Create custom sections and buttons to ribbons
- Default ribbon elements can be hidden or overwritten with custom elements
- No GUI editor, modifications done through XML:
  - Export the solution customizations
  - Edit the RibbonDiffXml
  - Create Web Resources for icons and scripts
  - Import solution
- Outlook 2003 and 2007 will display ribbon elements as menus, Outlook 2010 has full ribbon

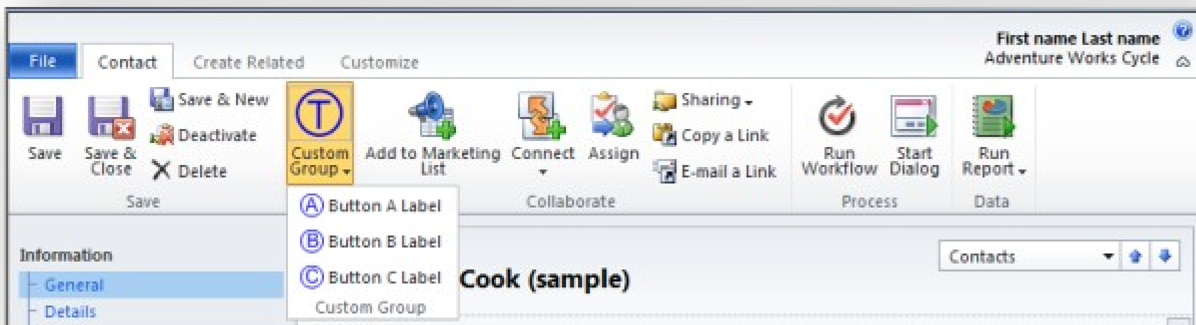
Ribbon features

- Ribbon types available:
  - Entity ribbons: form, grid, subgrid
  - Web app specific: jewel (”File”), basic home tab
  - Others: dashboard, advanced find, form editor…
- Ribbon element display & enable criteria:
  - Client type, field value, form state, record privilege, grid selection count, custom rules for Javascript libraries
- Ribbon control actions:
  - Open a URL, pass parameters, call Javascript function
- Ribbon element size and scaling priority order

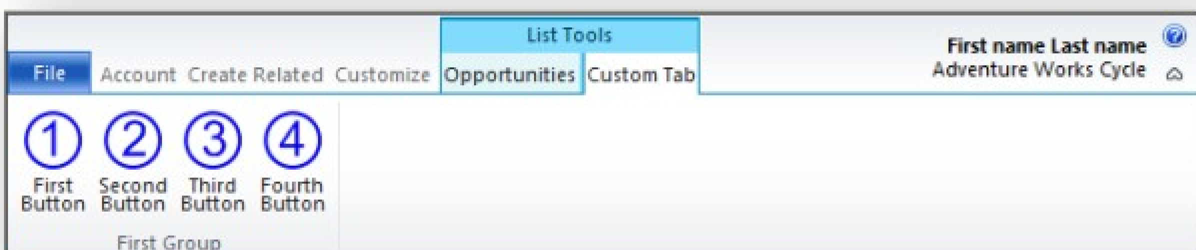
Examples of custom ribbon elements



Custom group and buttons in default layout



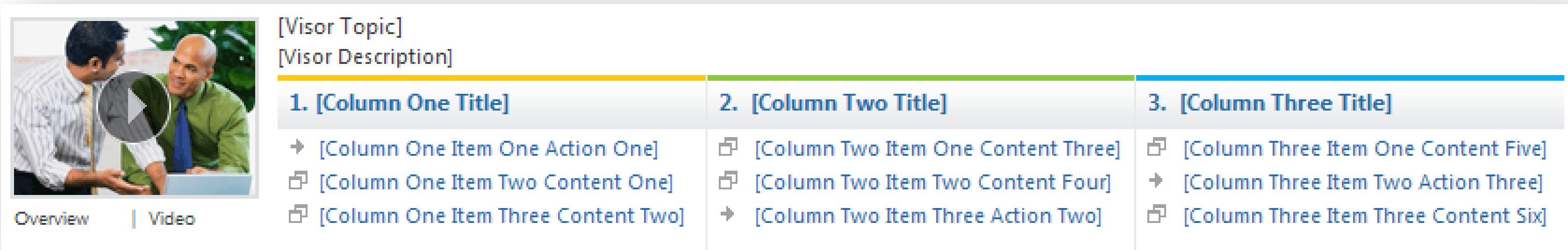
Custom group with popup button layout



Custom group in subgrid ribbon list tools

From Microsoft Dynamics CRM 2011 Beta SDK

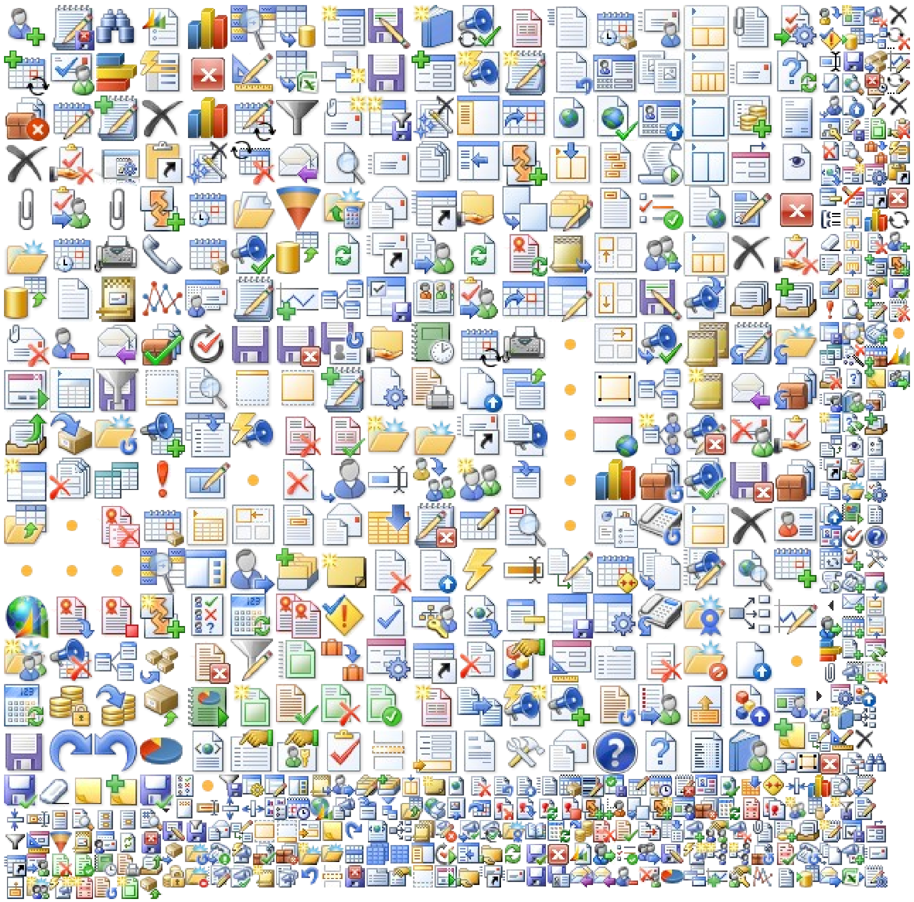
Getting Started Pane



- Getting Started Pane is available for all entities that have viewable grids in CRM UI
- Allows presenting relevant instructions on the context of the entity being viewed
- Supports HTML and Silverlight content
- Users can show/hide the pane per entity or set global preferences through Options menu
- SDK contains HelpVisorTemplate that can be used as a customization starting point for own panes

Performance with CSS sprites

- CSS sprites reduce the HTTP calls to web server, thus improving performance in WAN environment
- One image file is used to render several icons by showing only a specific region of the main sprite
- Dynamics CRM 2011 utilizes sprites like ribbon.png to load and cahce all default icons
- Note: Custom icons will have a higher payload and may affect page loading times



Solution Management

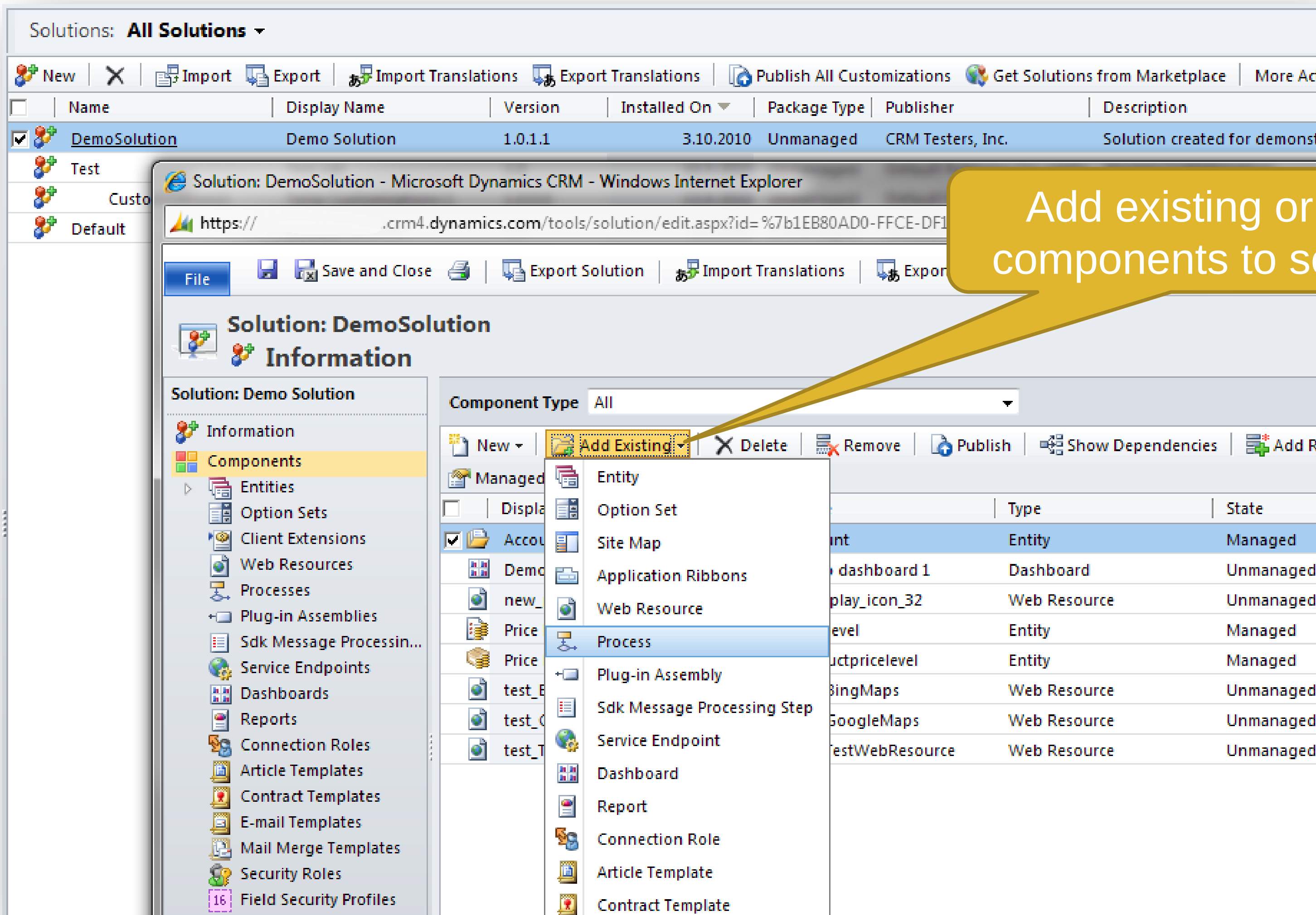
Not just customizations

- In CRM 4.0, customizations and other configuration items were managed independently from one another
- In CRM 2011, solutions are bundles of components that are used for delivering specific applications/functionalities
- Each CRM organization has one default solution, in addition to which it can have multiple different solutions from different publishers

Solution components

- Schema and metadata components
  - Entities, attributes, forms, views, charts, relationships, option sets
- User interface components
  - Web resources, ribbons, sitemap, dashboards
- Code components
  - Processes, dialogs, plug-ins, custom WF activities
    - Plug-in registration is also stored in the solution
- System configuration components
  - Templates, security roles, reports, settings
    - Users and teams not included, roles need to be manually configured after solution installation

Customizing solutions in CRM



Add existing or new components to solution

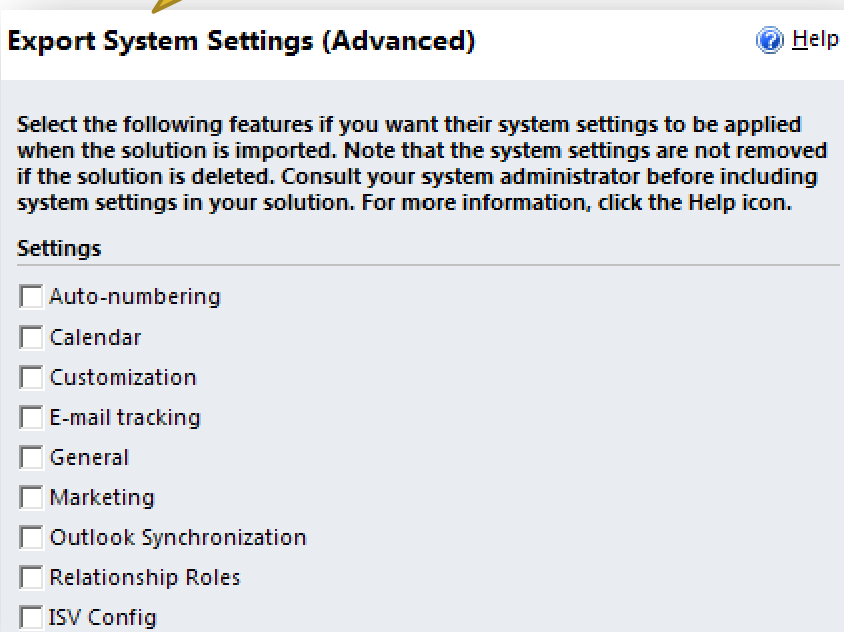
Unmanaged / managed solutions

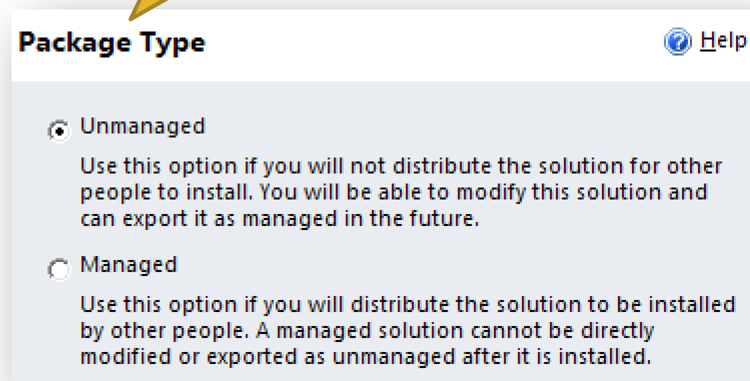
- You can only create unmanaged solutions
- Upon export you can choose to make the solution either unmanaged or managed
- Managed solutions are locked from editing
- Managed solutions each have their own “layer”, which will control adding and removing solutions to/from a system
- Unmanaged solutions cannot be uninstalled
  - Only pointers to components, not separate containers
  - You can delete the solution, but components will not be deleted from the system

Exporting a solution

Including system settings in the solution

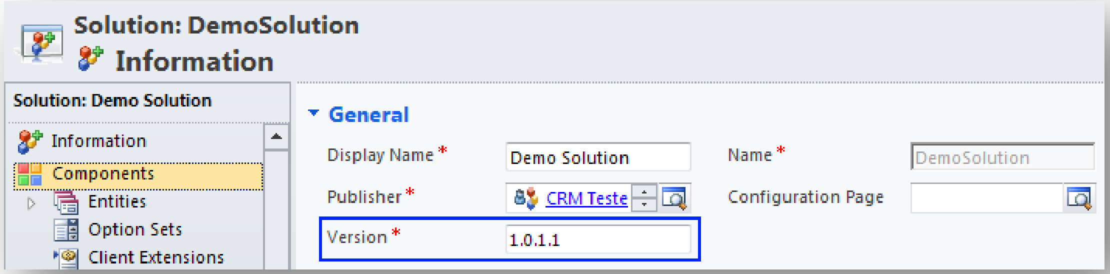
Export as unmanaged or managed solution





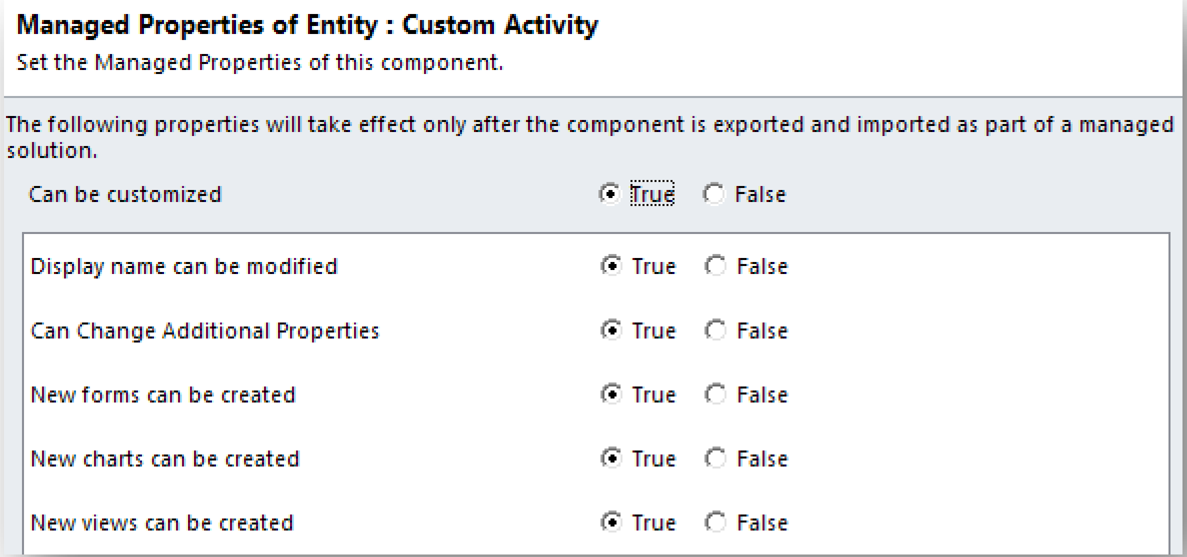
Updating solutions

- Managed solutions in the system can be updated with new versions of the solution file provided by the publisher
- No version control or rollback support in the CRM platform itself, needs to be managed by publisher
- Solution version numbers are simply metadata set by the publisher



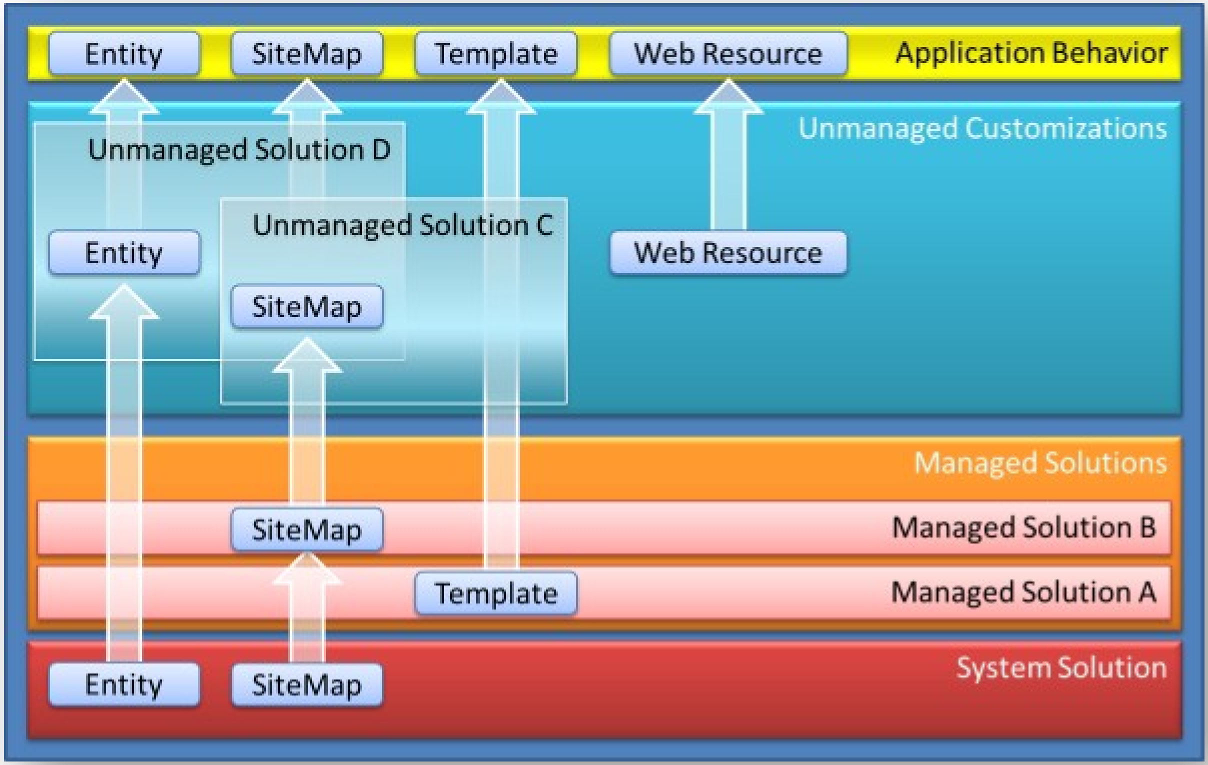
Managed properties

- By default, all custom solution components are customizable
- Managed properties can be enabled per component, which will enforce customization rights once the solution is exported as managed



Solution layering

- The active (default) solution is calculated from all the unmanaged and managed solutions applied to the system



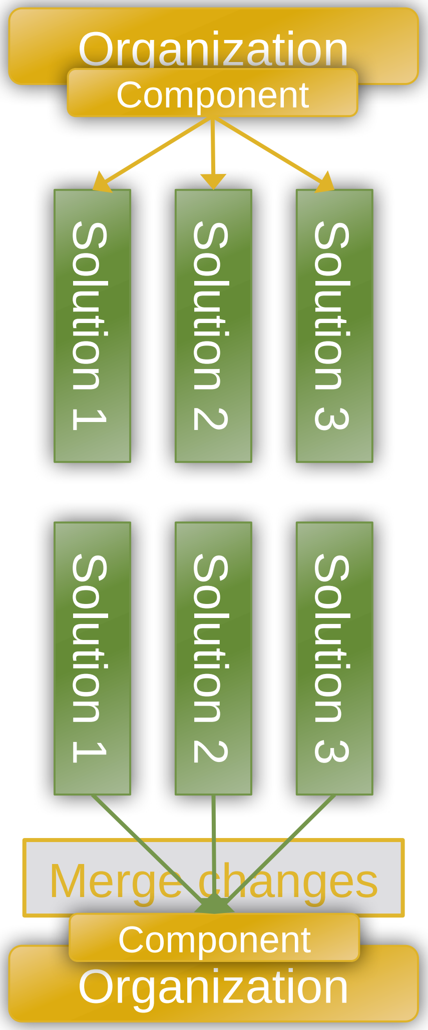
From Microsoft Dynamics CRM 2011 Beta SDK

Merging solution contents

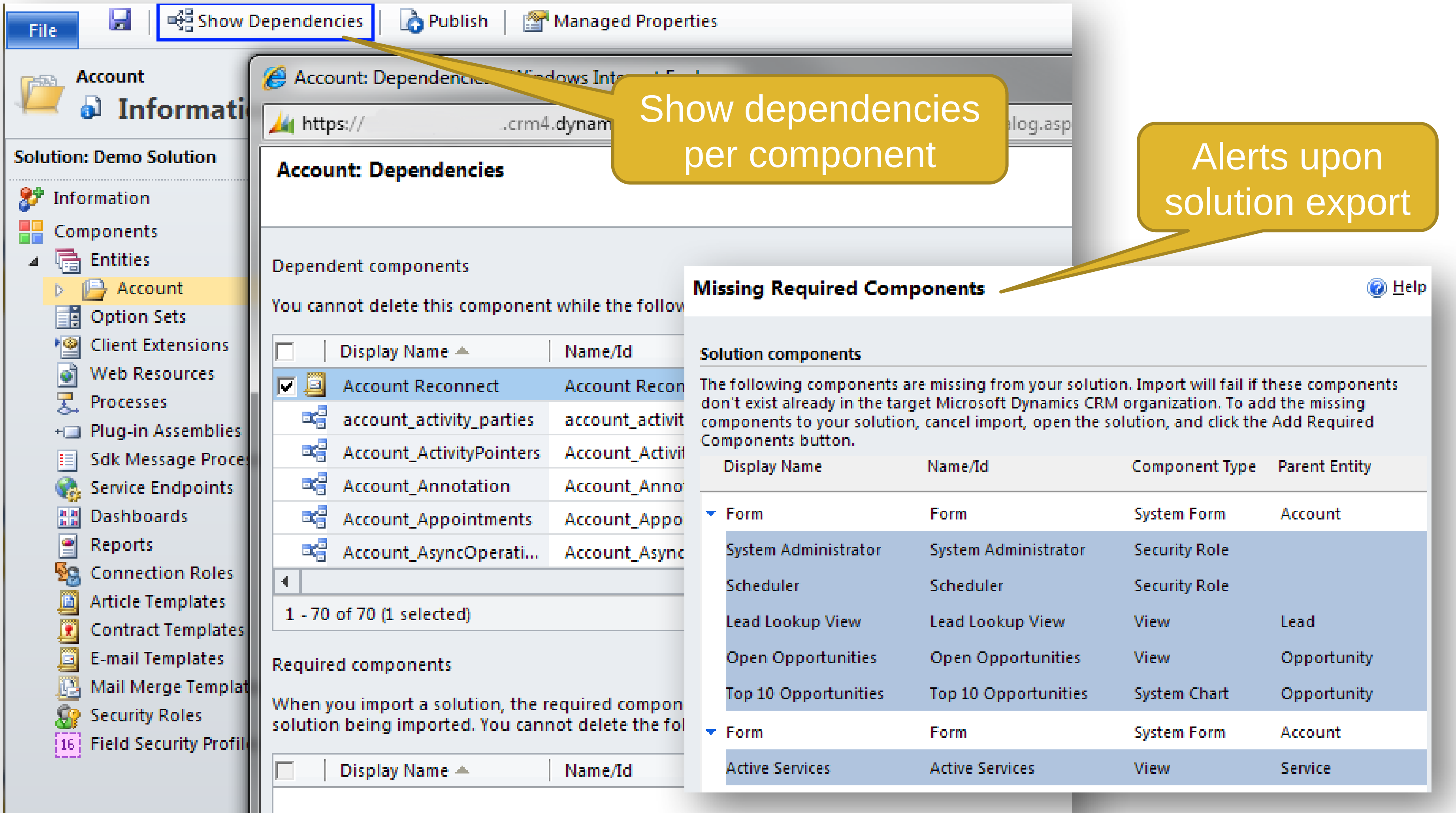
- Solutions can and will very likely have dependencies to the same shared components
- The order of solution installations is important: **the last one wins**
- Conflicting form and SiteMap customizations can cause surprising results, which may require manual fixing after solution installation
- Option sets have value prefixes to reduce the chances of conflicts between solutions
- Ribbon customizations are defined by only stating the changed controls through RibbonDiffXml

Component export and import

- **Exporting** a solution component from an organization will contain **all the published changes**, as there is only one active component in the system at any given time (and not different versions)
- Upon **importing** solutions that update the same component, the **changes are merged** with the ones already published in the organization
- Therefore, each distinct solution that is interacting with the same components should be **developed inside a separate organization** of its own



Dependency tracking

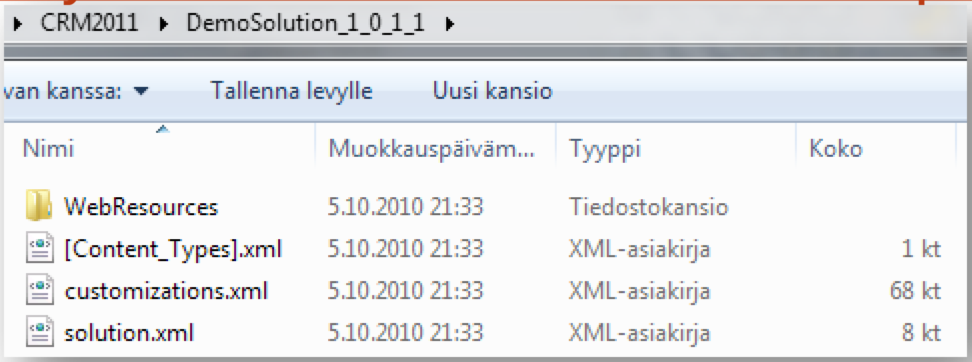


Uninstall solutions

- Uninstalling an unmanaged solution will leave all the components in the system, only the solution record is removed
  - Unmanaged solutions are simply component groupings
- Uninstalling a managed solution will remove both components and data from the system
- See post from David Yack: http://crm.davidyack.com/journal/2010/9/20/exploring-crm-2011-solution-framework-update-scenarios.html

Solution files

- ZIP files containing a set of XML files
- No encryption, content can be browsed by the customer also in managed solutions
- See blog post ”Inside the solution XML file” by Gayan Perera for more information:
  - http://weblogs.asp.net/gayanperera/archive/2010/09/14/peeking-into-the-dynamics-crm-2011-solution-export-file.aspx



Solution layering strategies

- Evaluate the practical number of different solutions
  - More layers allow better modularity of solutions
  - …but can make development and layer management tricky, due to number of files and organizations
- Separate CRM organization needed for publishing each individual solution layer
  - All exports are done from the unmanaged layer
- Only import managed solutions to your test environment to preserve the default (unmanaged) layer
- Automating build environments recommended to avoid mistakes of manual import process for multiple solution layers in multiple dev and test organizations

Team development strategies

- When multiple developers are customizing a single environment, MS suggest the following strategies for manage team development:
- **Single organization, one master solution**
  - Developers must work on separate components
- **Single organization, multiple developer solutions + one master solution**
  - Each developer has an unmanaged solution + reference to master solution components, no need to merge changes
- **One organization per developer**
  - Each developer has their own environment from which unmanaged solutions are imported into a master solution

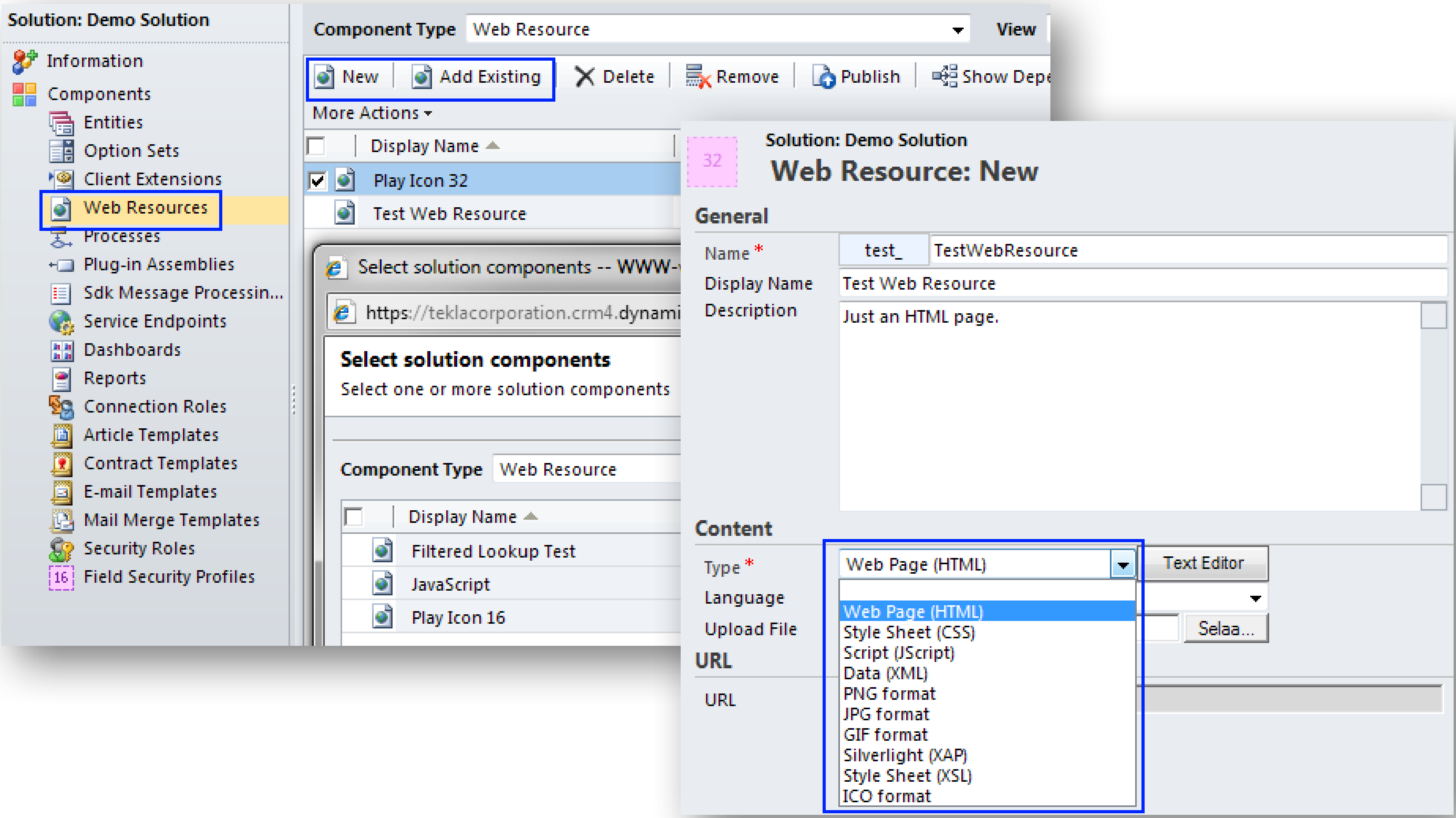
From Microsoft Dynamics CRM 2011 Beta SDK

Web Resources

Contents and use cases

- Web resources represent files that would have traditionally been placed on the CRM web server
- Resource types supported:
  - Images: png, jpg, gif, ico
  - Website(app) components: html, css, javascript
  - Silverlight applications
- Enables portability of custom pages and applications by packaging the resources into the solution file
- Available also in Outlook client offline mode

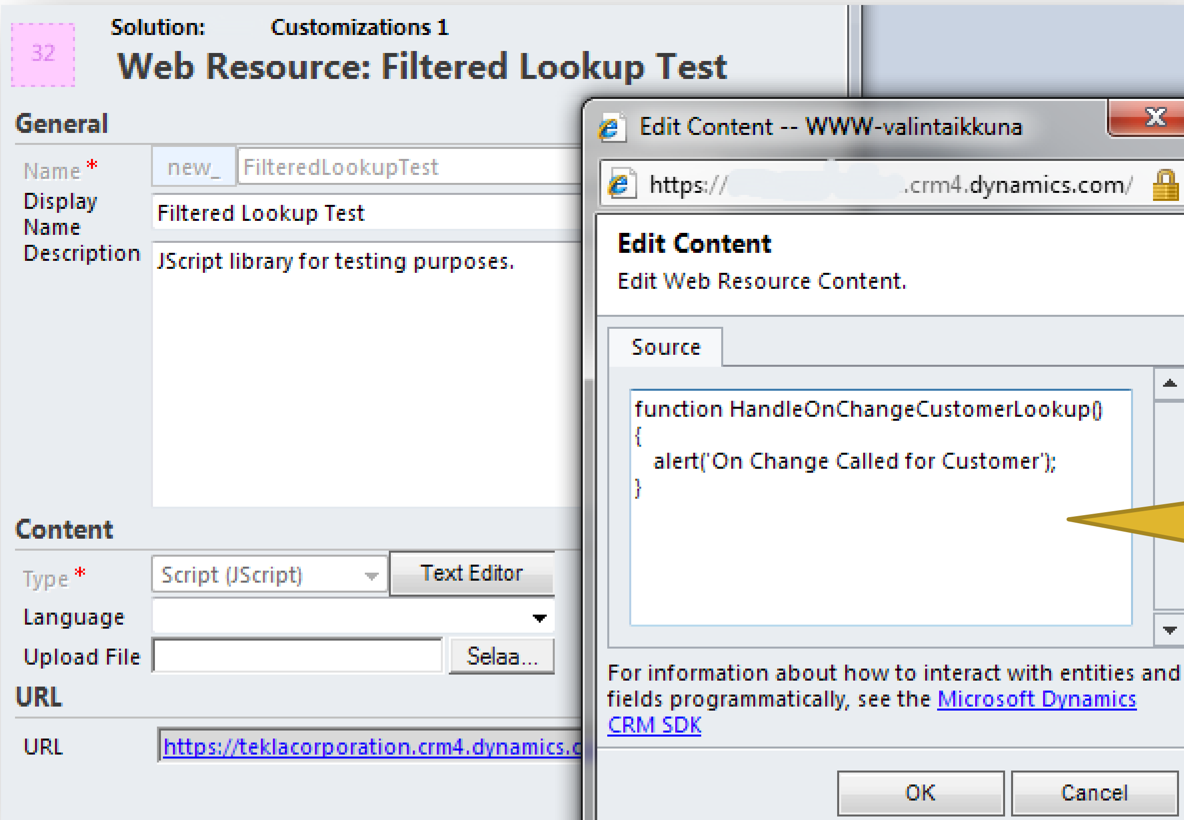
Adding web resources



Script libraries

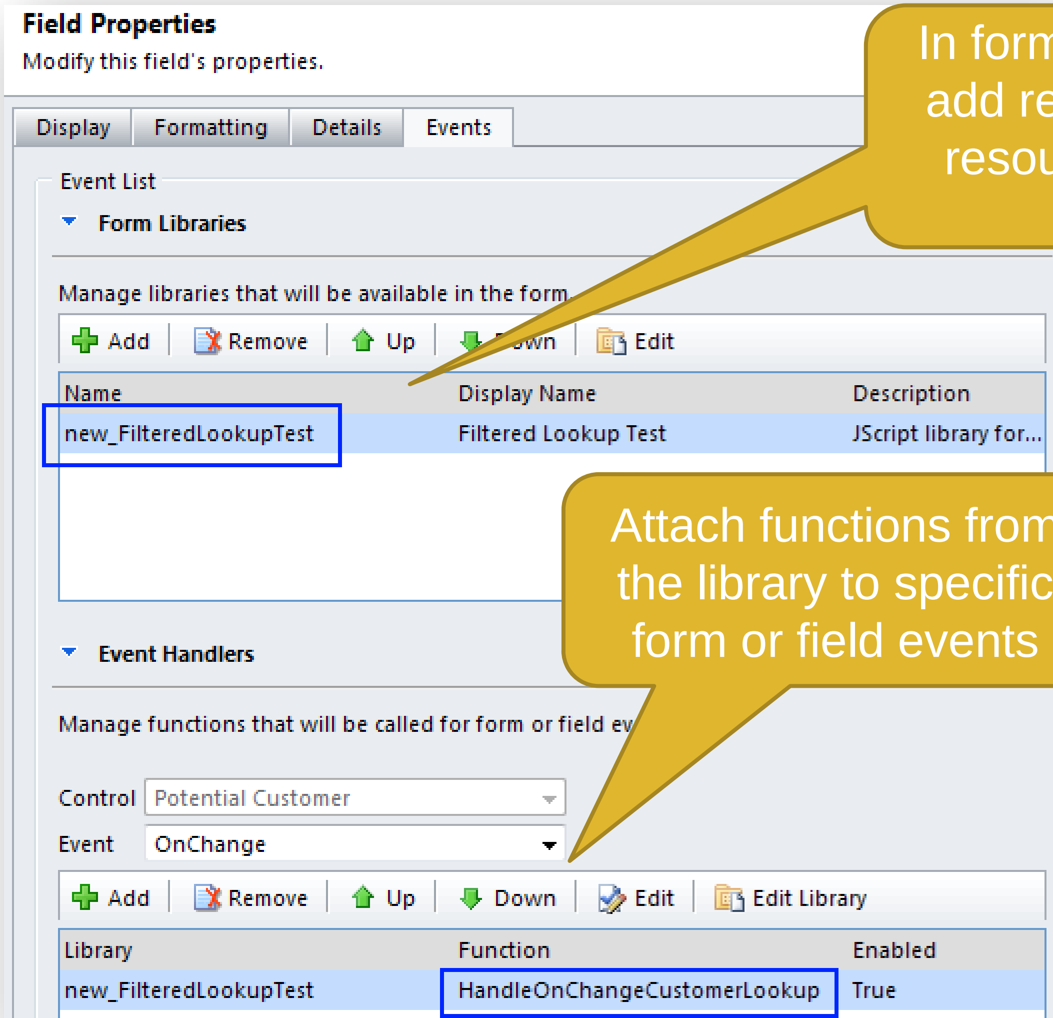
- Javascript libraries allow the central management and re-use of scripts across different entities and forms
- Functions from the libraries can be associated with form and field events in form customization UI, while managing the code itself on the Web Resource hosting the library
- See blog post by Ayaz Ahmad:
  - http://ayazahmad.wordpress.com/2010/09/25/javascript-libraries-in-microsoft-dynamics-crm-2011/

Using Jscript libraries (1)



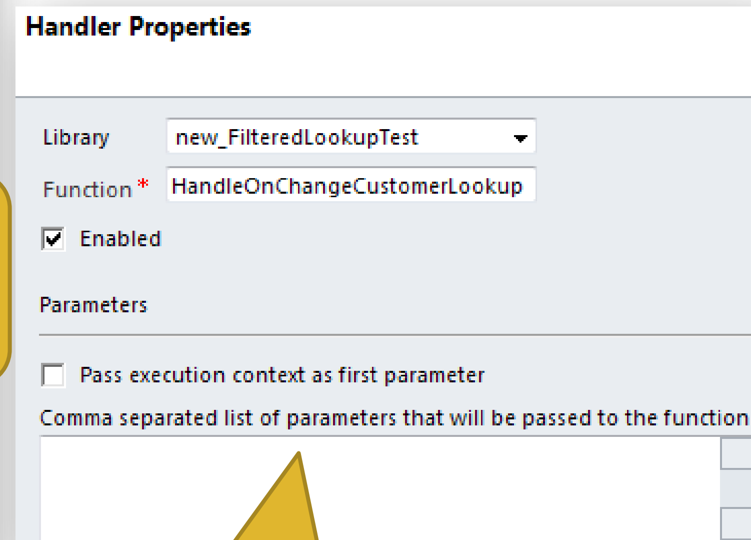
Upload or cut&paste scripts into a new Web Resource

Using Jscript libraries (2)



In form or field properties, add reference to the web resource with the script library

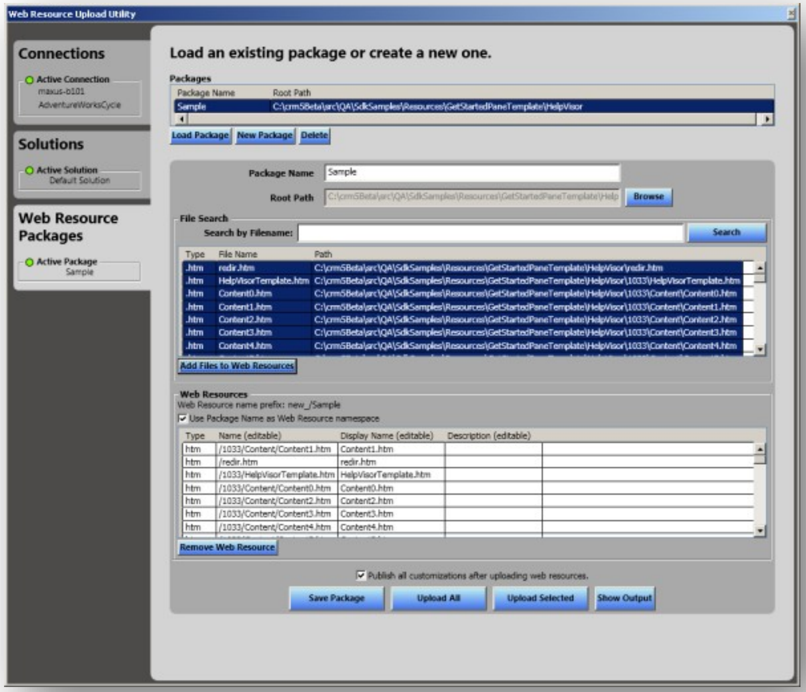
Attach functions from the library to specific form or field events



Pass parameters to functions

Managing web resources

- CRM 2011 SDK contains a WPF tool called Web Resource Utility
- Can be used for building Web Resource Packages to simplify management and uploading of individual files for CRM Web Resources



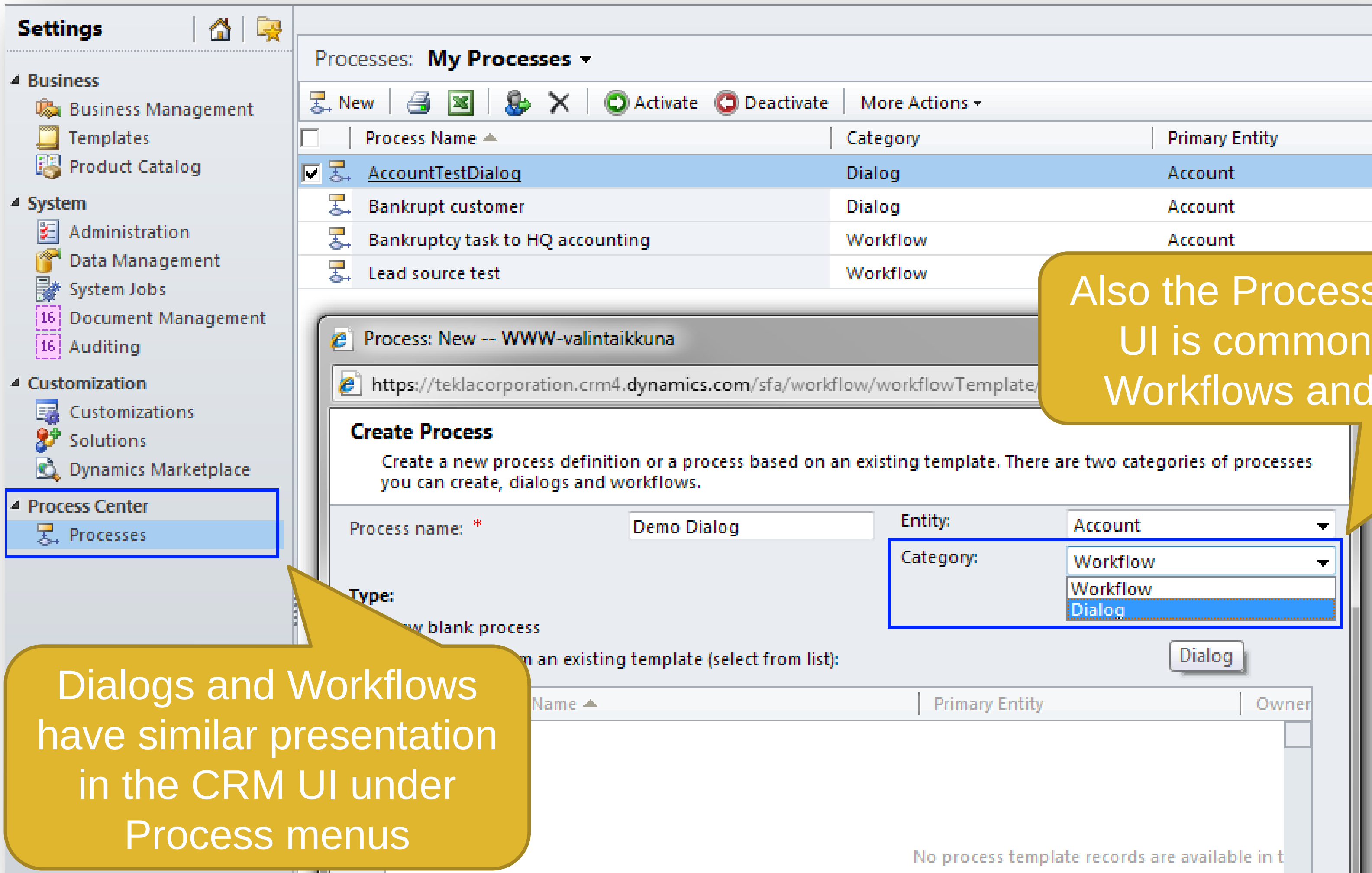
Processes

(previously known as Workflows)

From workflows to processes

- Workflow concept has been replaced with Process
- Processes are split into 2 categories:
  - Workflows
  - Dialogs
- Dialogs are basically **interactive workflows** that allow the user to enter input data while the workflow logic is being executed in the background
- Whereas workflows can be started by a trigger and executed asynchronously, dialogs must be started by the user and **executed synchronously**
- In short, dialogs are the ”wizard engine” for workflows

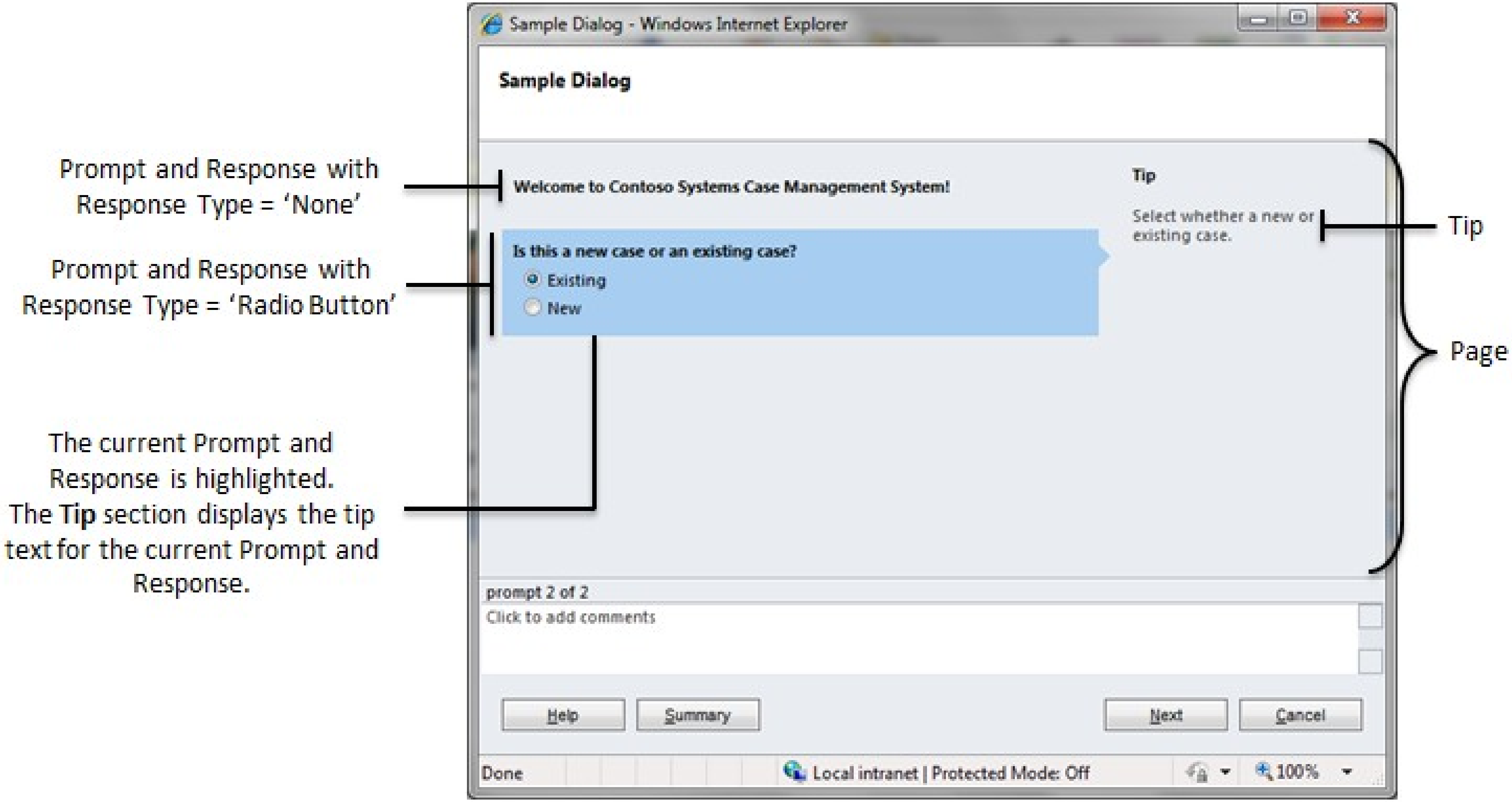
Process Center



Also the Process Designer UI is common to both Workflows and Dialogs

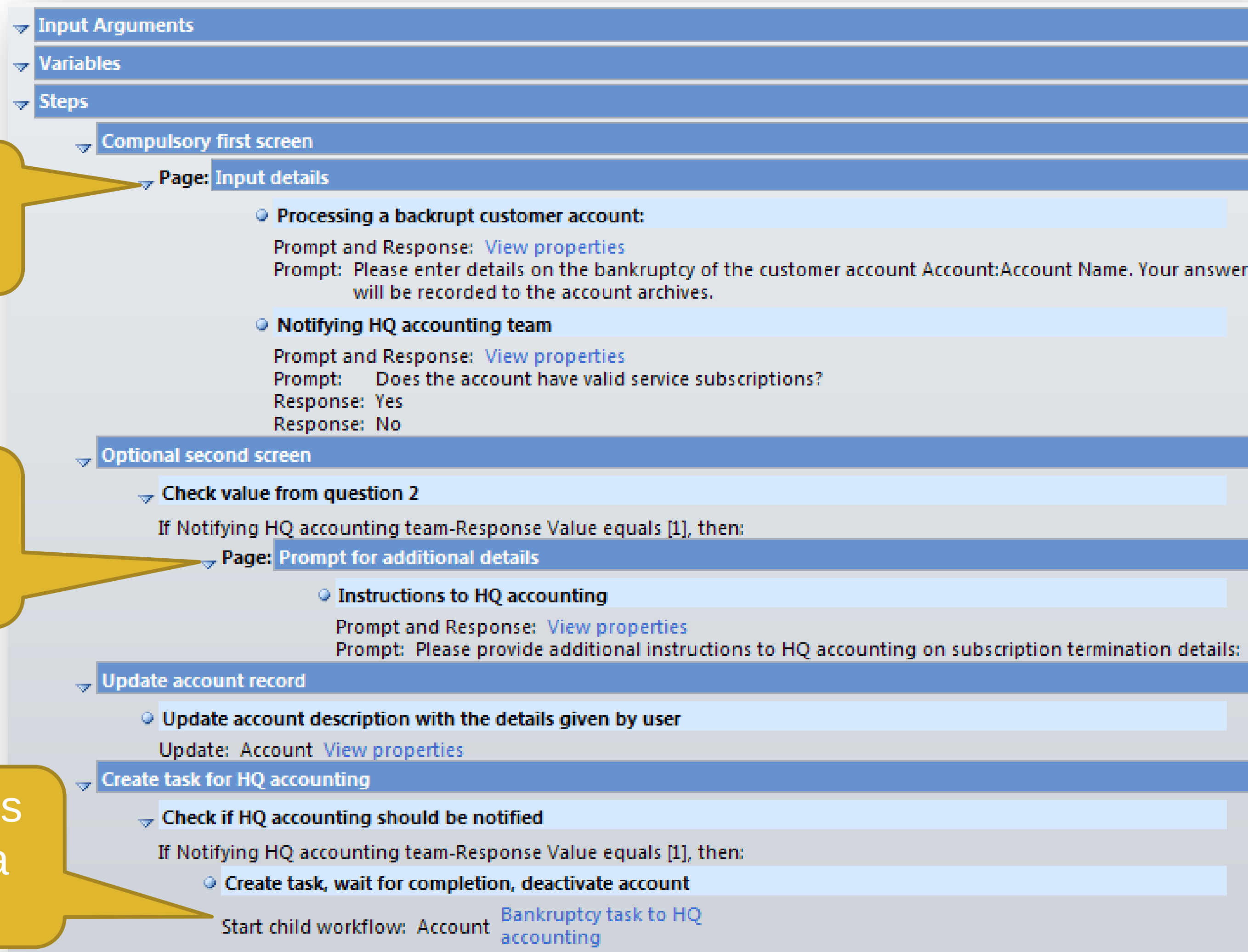
Dialogs and Workflows have similar presentation in the CRM UI under Process menus

Dialog page components



From Microsoft Dynamics CRM 2011 Beta SDK

Dialog process conditions

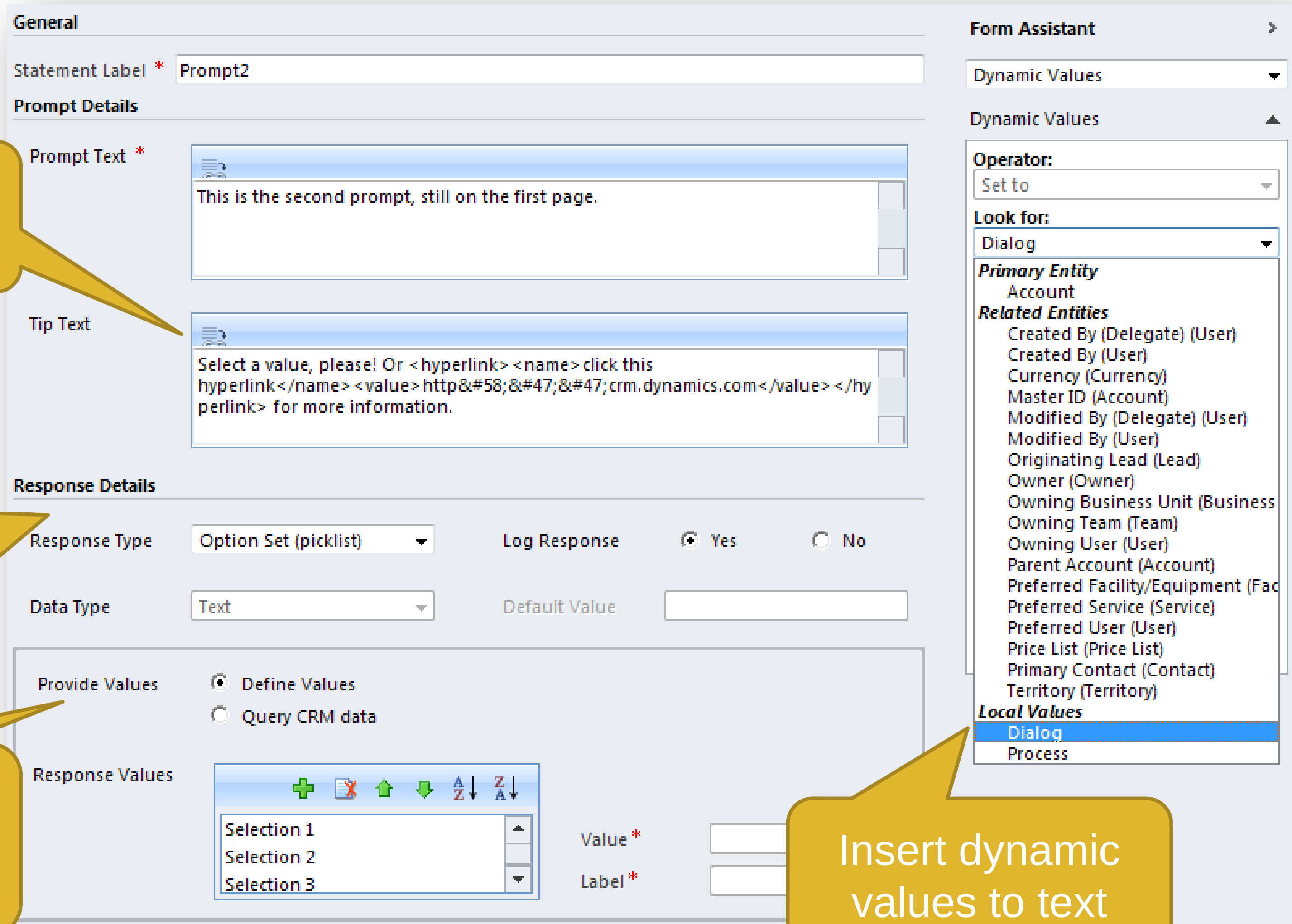


Dialog page 1 with 2 input prompts

Dialog page 2 shown based on page 1 response

Continue the process asynchronously in a child workflow

Dialog prompt options



Insert hyperlinks to instructions

Collect response data as picklist, nvarchar or ntext

Type in list of values or query CRM data

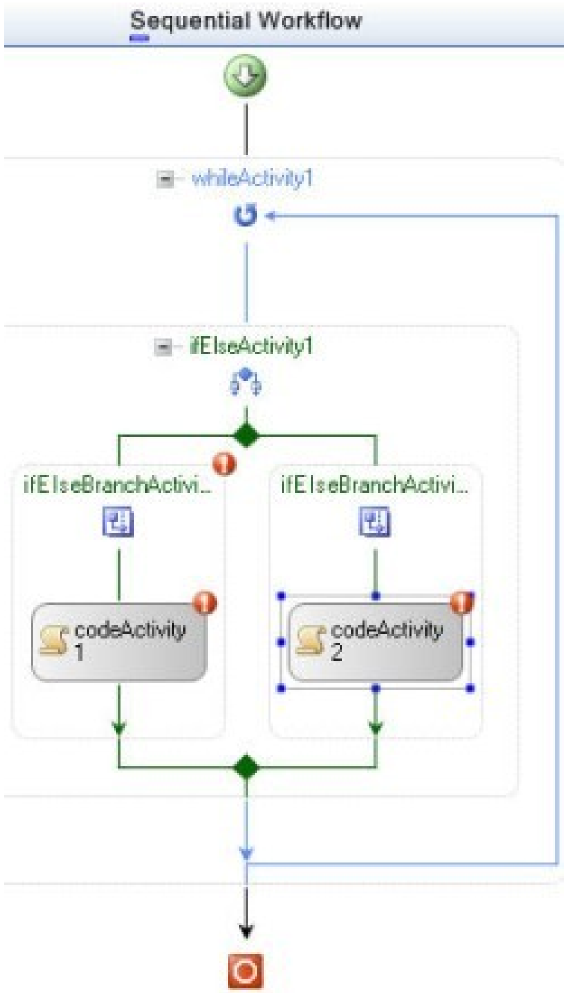
Insert dynamic values to text

Examples of Dialog use cases

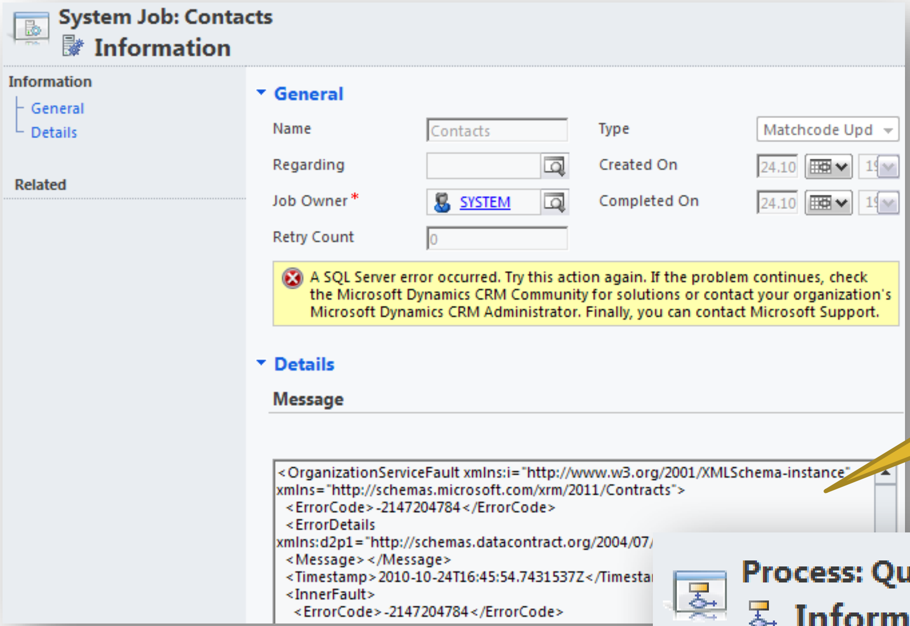
- Replace the built-in dialog windows such as ”convert lead” or ”close opportunity” with custom logic, also replace the ribbon buttons with references to custom Dialogs
- Guide the user in new record creation process by showing instructions in prompts
- Force the input of several required variables and descriptions when updating a field that is disabled on the entity form

Processes for developers

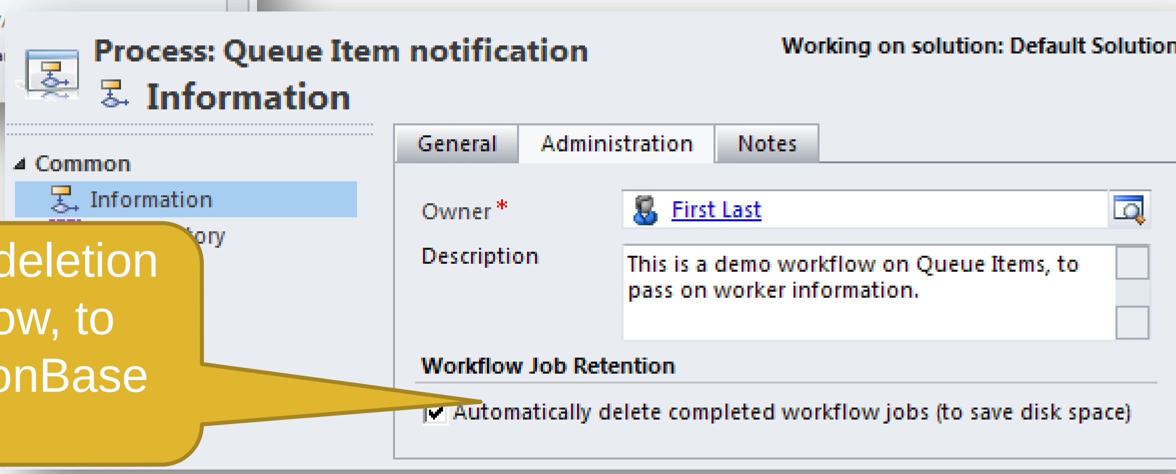
- .NET Framework 4.0 workflows
- Create custom workflow activities
- Fully declarative XAML modeling in WF 4 (workflows & activities)
- Single XAML file
- Modifications through Visual Studio 2010 Workflow Designer
- Not supported for CRM Online



Process administration



System job error details visible in UI



Completed system job deletion can be set per workflow, to manage AsyncOperationBase table size

Upgrade from CRM 4.0

- Running workflow instances will be upgraded to .NET 4 during server/organization upgrade
- Custom workflow activities written for CRM 4.0 in .NET 3 are wrapped into .NET 4 interop activity

Notes on processes

- Processes can be called through URL in a custom ribbon button
- Combined with the new queues and custom activities in CRM 2011, processes and dialogs provide ”a better work management story” for visualizing business process automation in CRM UI

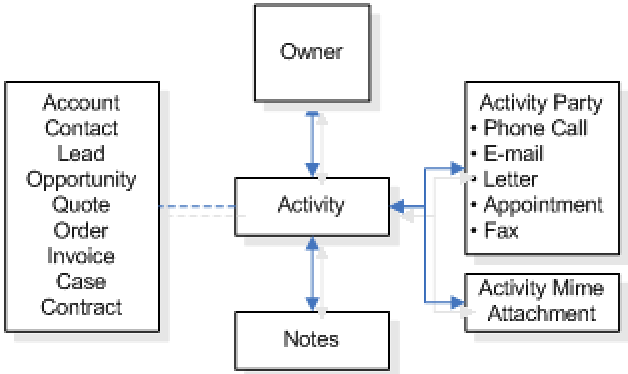
Dialog limitations

- Dialog prompts do not support many native CRM form attribute types:
  - Bit, date, lookup…
- Fields cannot be set as mandatory
- Dialogs cannot be paused/resumed
- Option sets cannot be queried in a Dialog
- Custom UI's cannot be embedded into Dialog pages (iframe/Silverlight/etc.)

Custom Activities

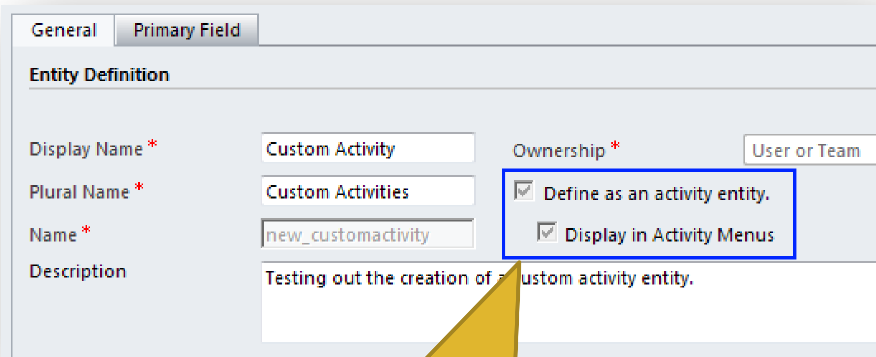
Features

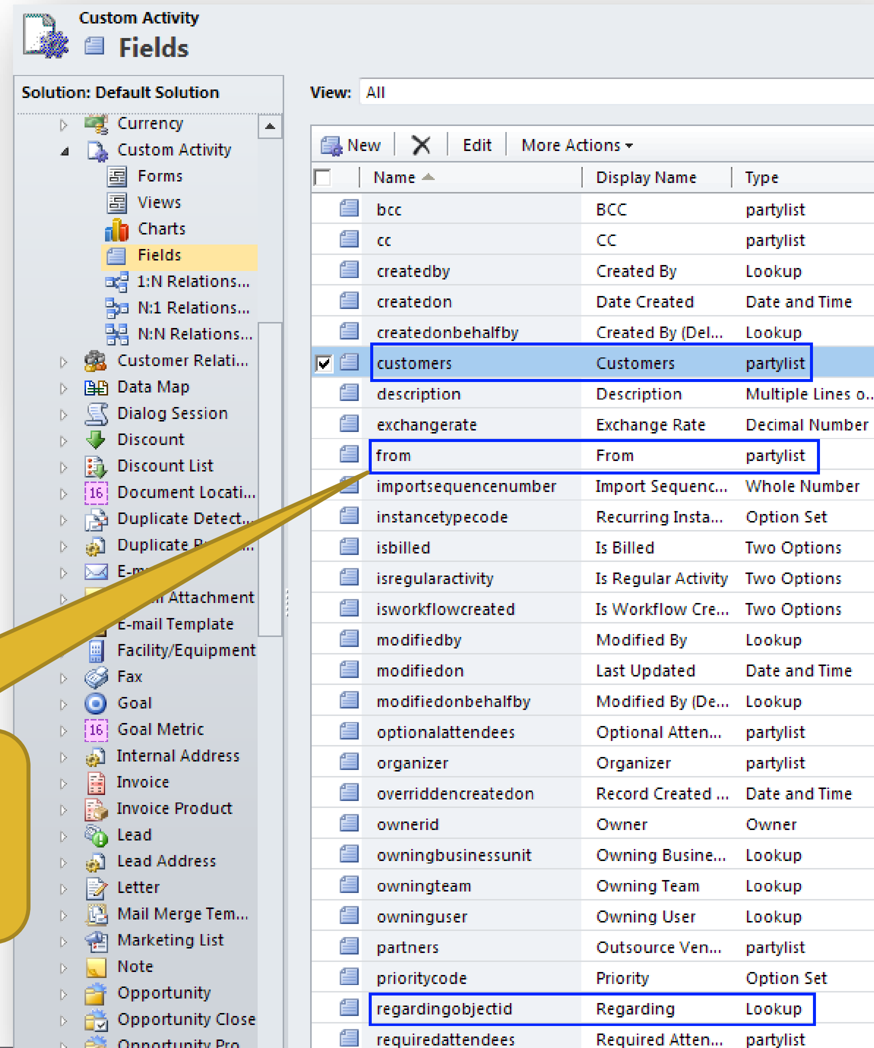
- Possible use cases:
  - Extending messaging types (IM, SMS etc.)
  - Work orders or other process specific activities
- Support for all the different activity participant types available in out-of-the-box entity types
  - Customer, To, From, Cc, Required, Optional, Resource etc.
- Display child record activities in account/opportunity roll-up views



From Microsoft Dynamics CRM 2011 Beta SDK

Creating a custom activity





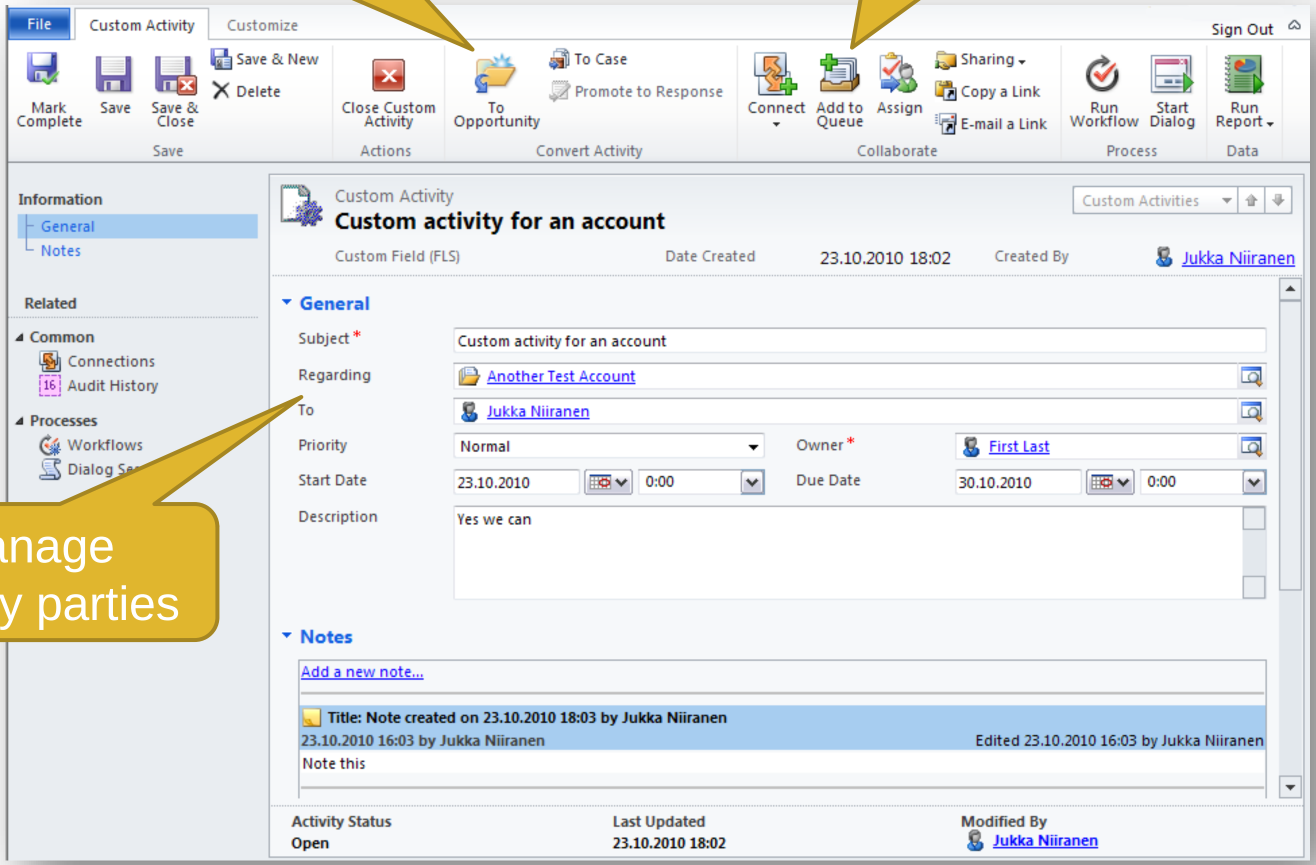
Define entity type as activity upon creation and set visibility

Partylist attributes will be created for each custom entity by default

Example of a custom activity

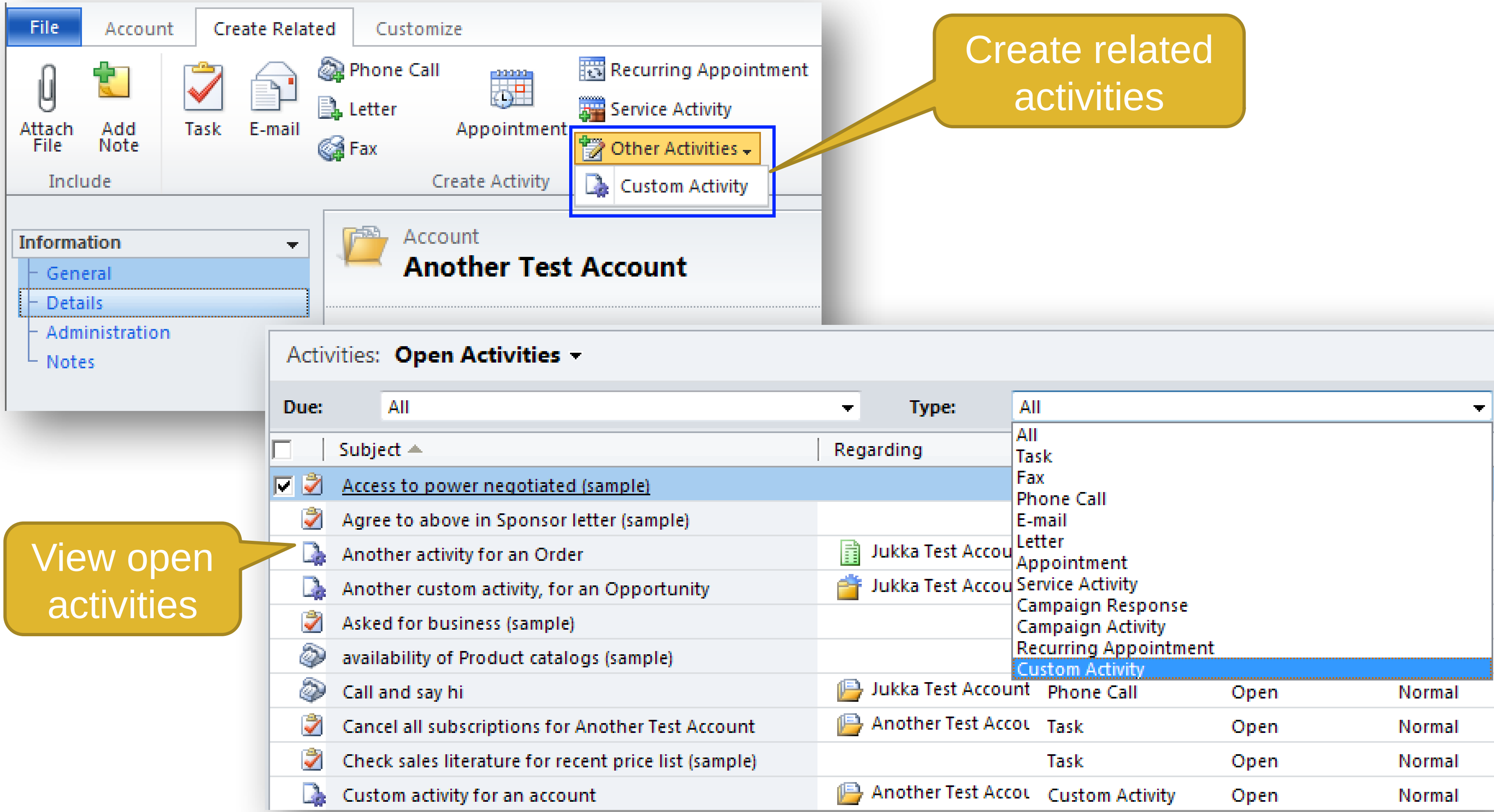
Convert activity to other records

Send activity to queue



Manage activity parties

Managing custom activities



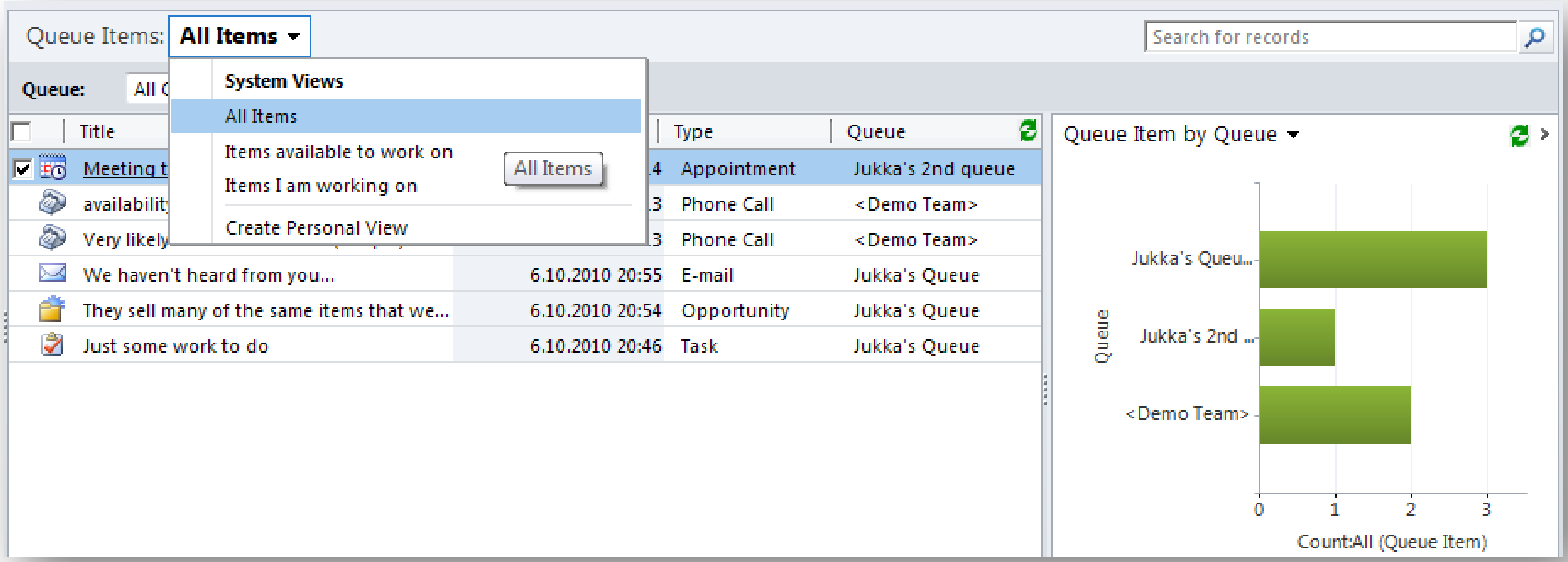
Create related activities

View open activities

Queue enhancements

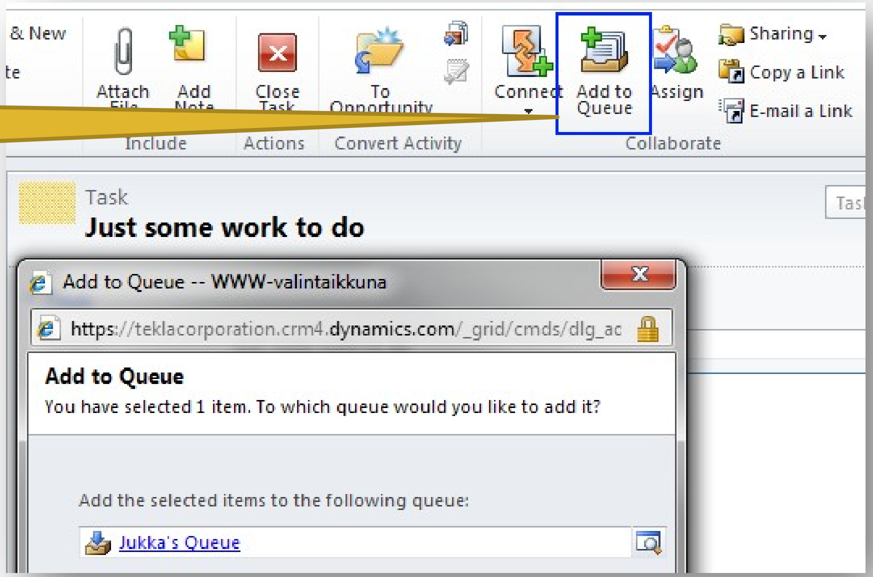
Queues in CRM 2011

- All customizable entities can be enabled for queues
- By default, queues are automatically generated for users, teams and business units
  - All of these can also be used for managing user rights

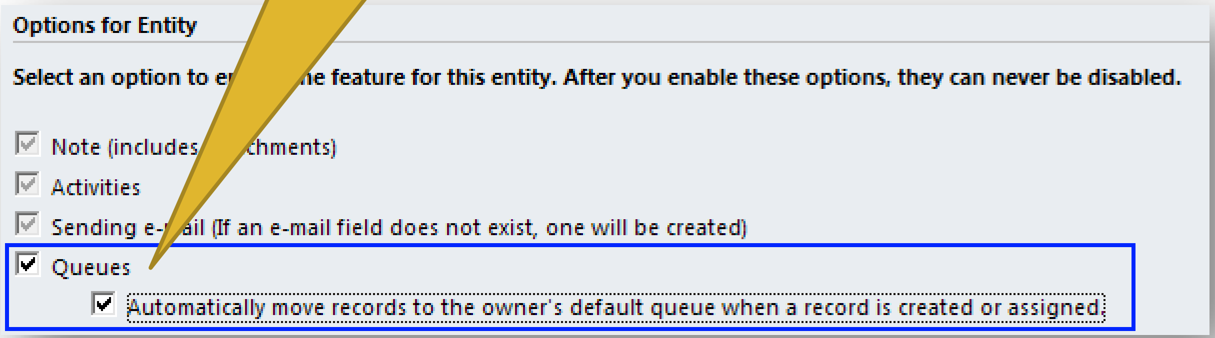


Adding record to queue

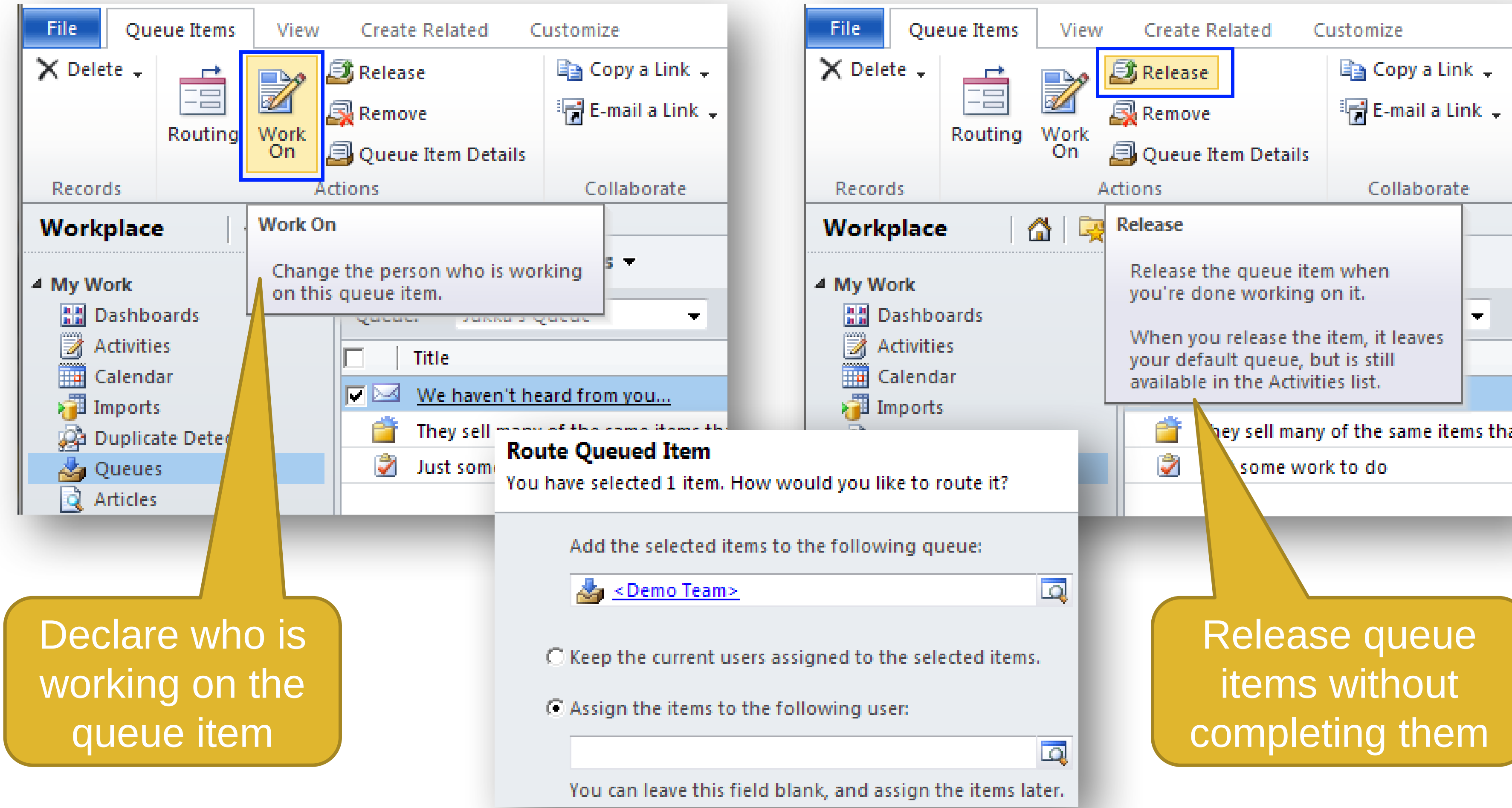
Manually add records to queue



Set all created & assigned records to appear in owner's queue automatically



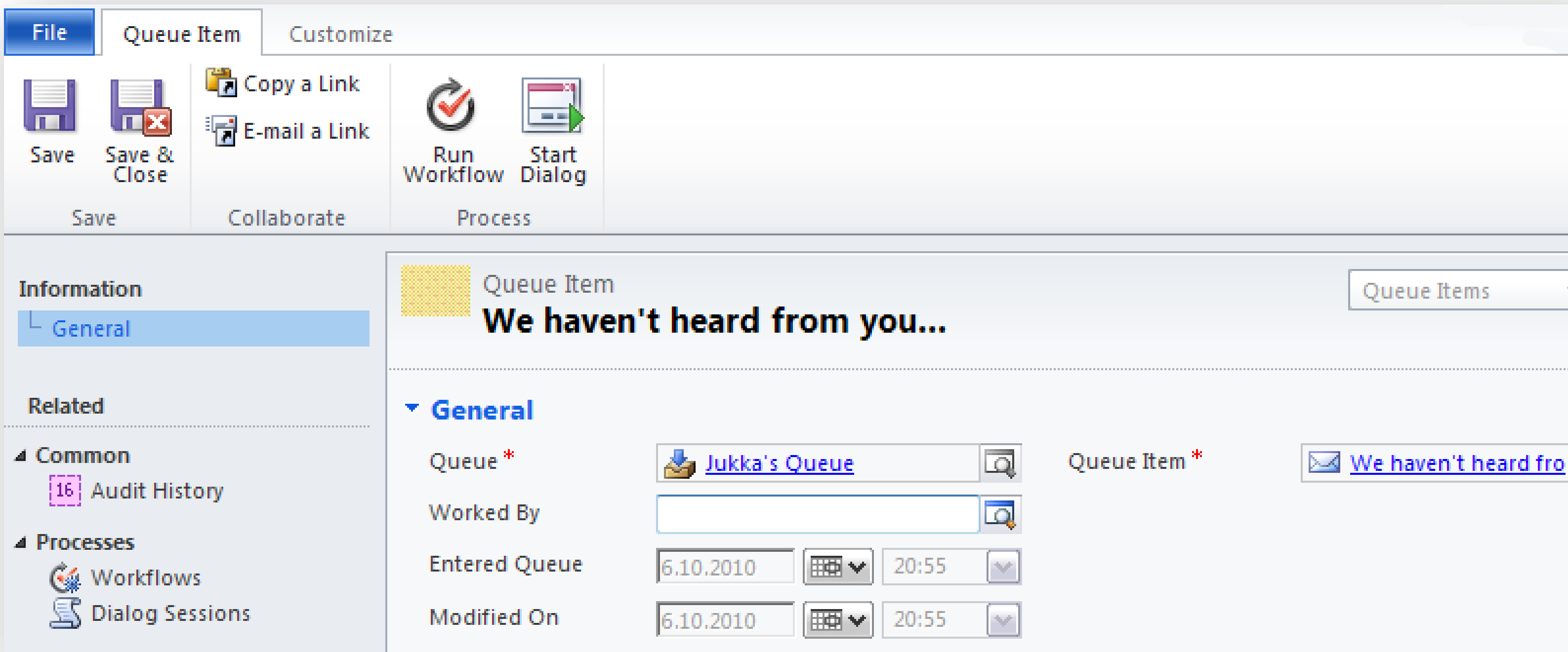
Actions on queue items



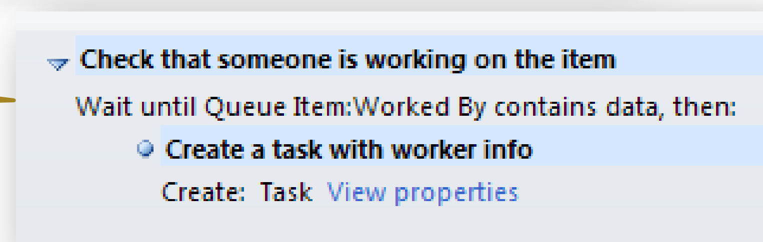
Declare who is working on the queue item

Release queue items without completing them

Queue item entity



Workflows can be triggered based on queue item creation / update

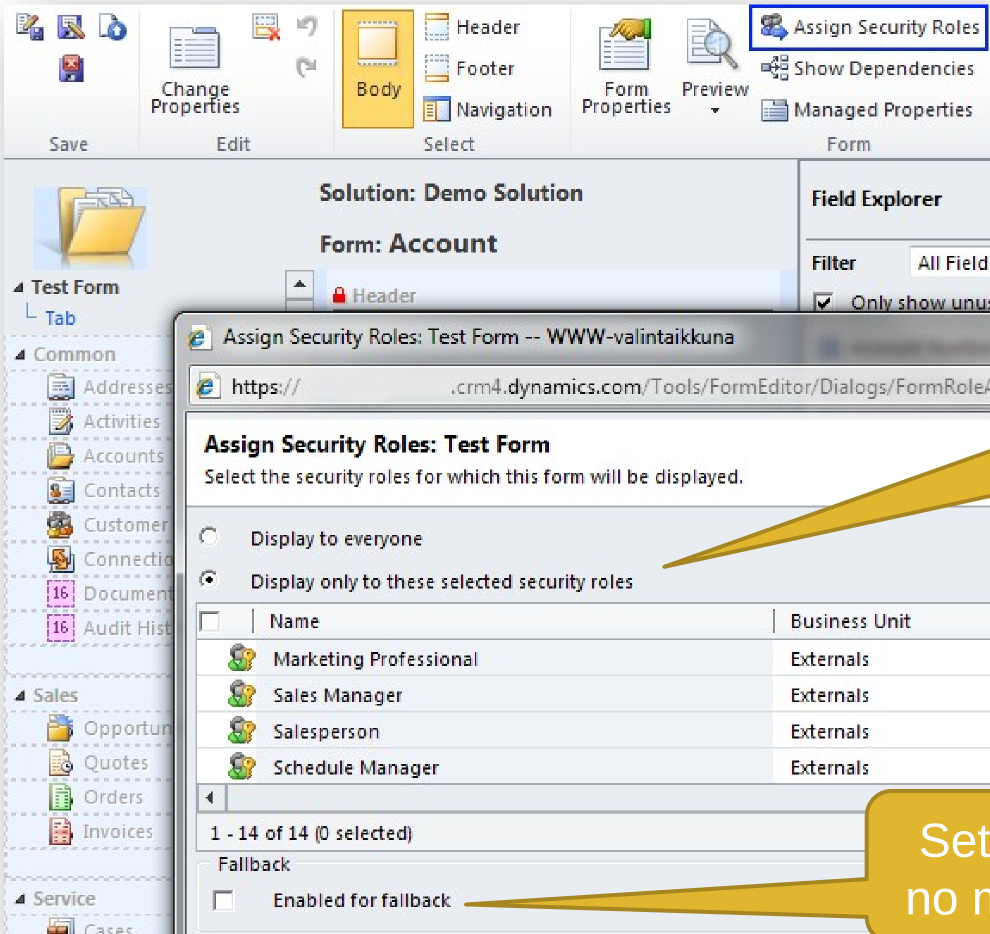


Multiple forms per entity

Role based forms

- Entities can now have more than one form
- Existing forms can be copied to create variations
- The form presented to a user is determined by the security roles assigned to available forms
- No support for ”rule based forms”, i.e. showing a form based on entity variable data
  - Show/hide scripts still needed to achieve the functionality

Managing form security roles

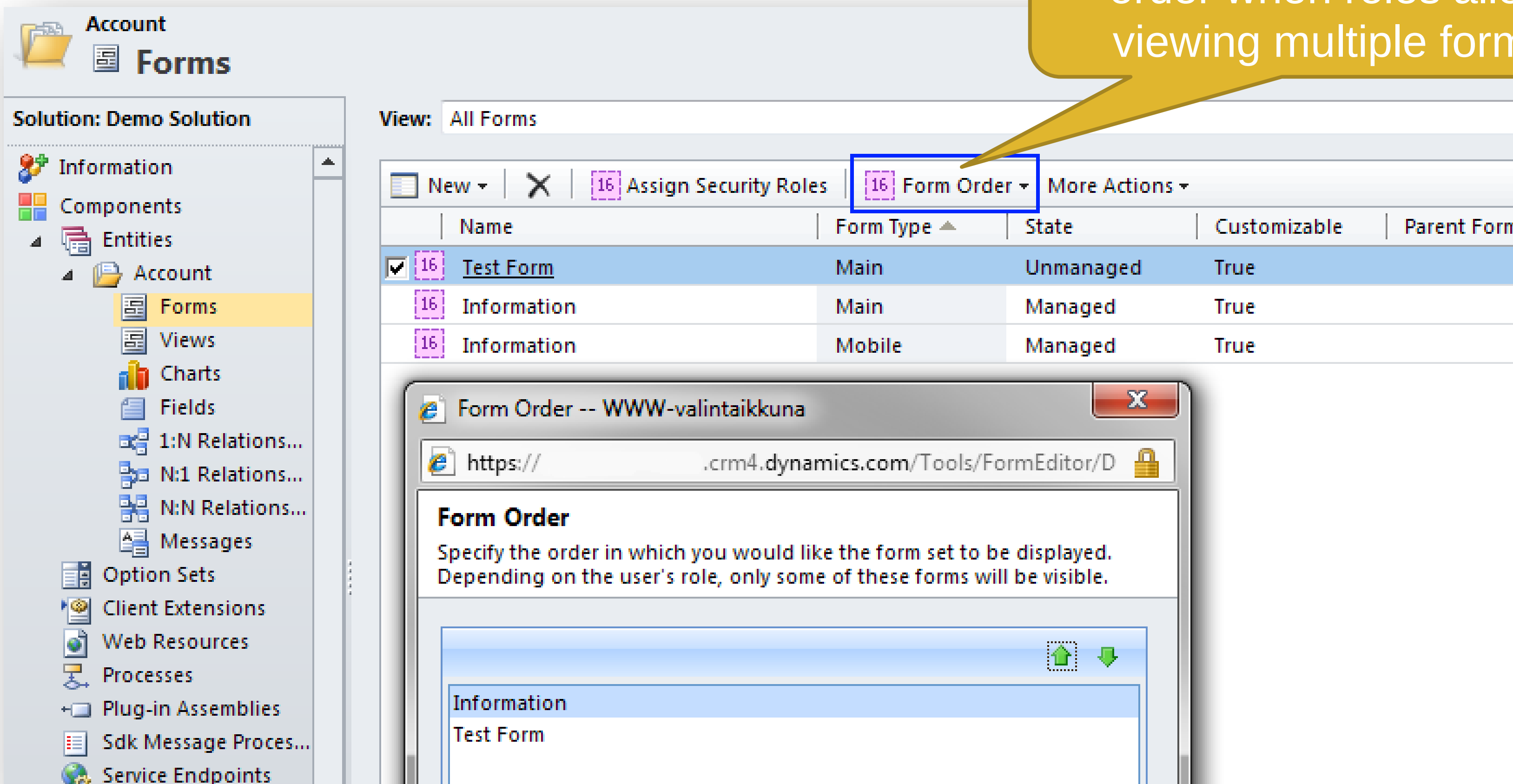


Determine security roles that are allowed to view the form

Set fallback form when no matching roles found

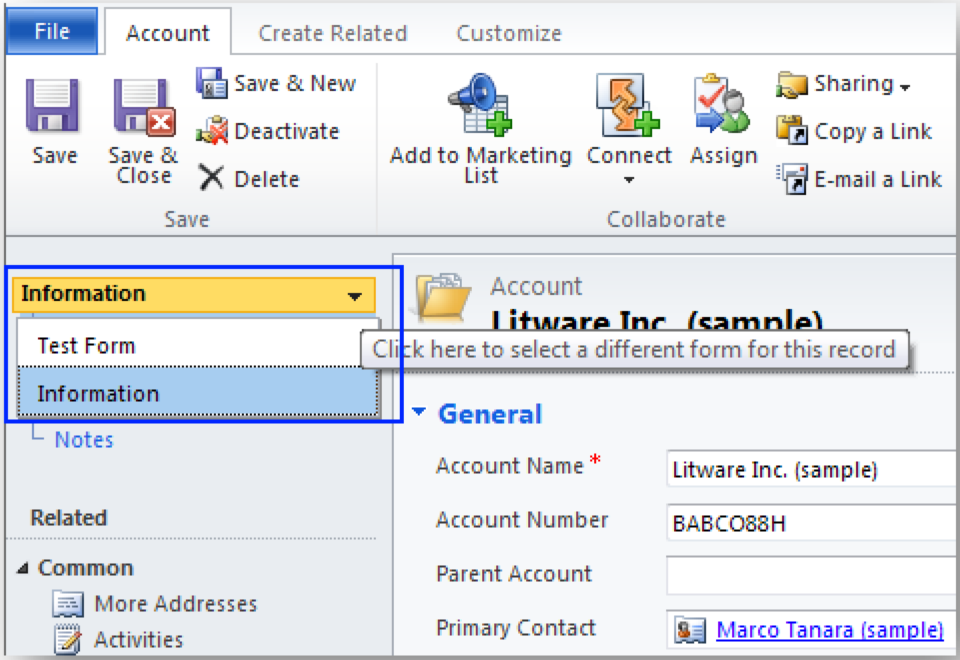
Managing form order

Define form display priority order when roles allow viewing multiple forms



Form selector

- When a user has the security roles that allow viewing more than one form, a form selector will be shown
- Form can be changed with onLoad script
  - Note: will cause the form to load again (and the onLoad event…)

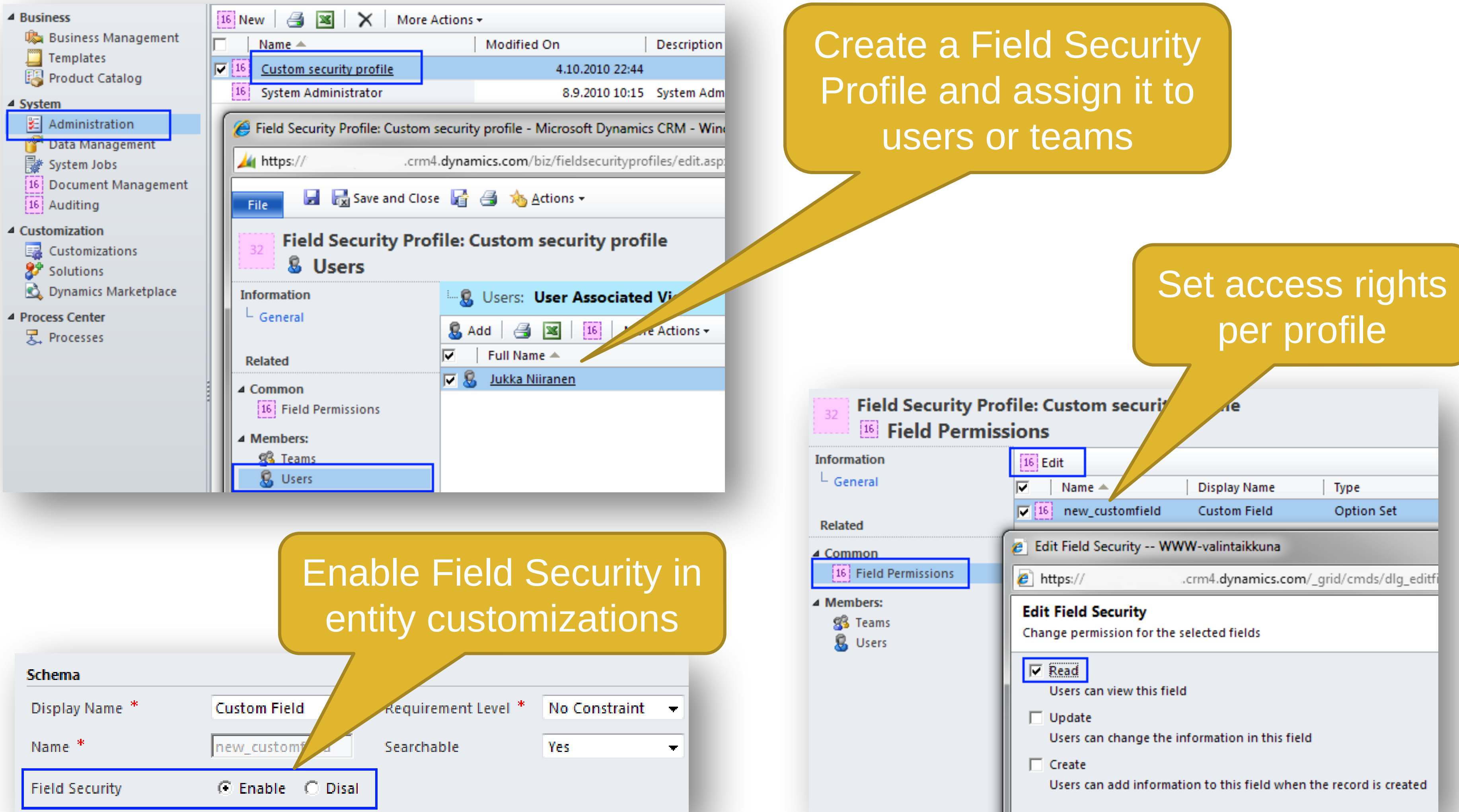


Security features

Field Level Security

- In addition to entities and forms, data visibility in CRM 2011 can be controlled also per field
- Applies to all components (reports, filtered views), data is never sent to client without access rights
- Field Security is not available for standard fields, such as contact address & name

Enabling field security

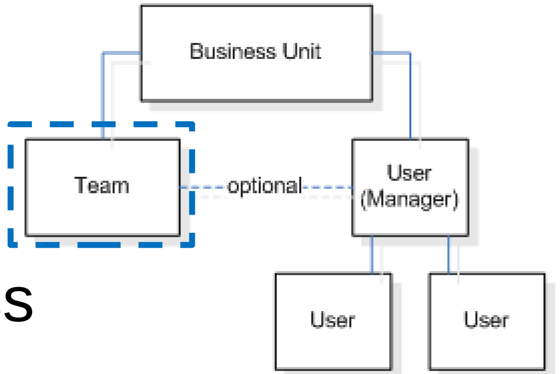


Create a Field Security Profile and assign it to users or teams

Set access rights per profile

Enable Field Security in entity customizations

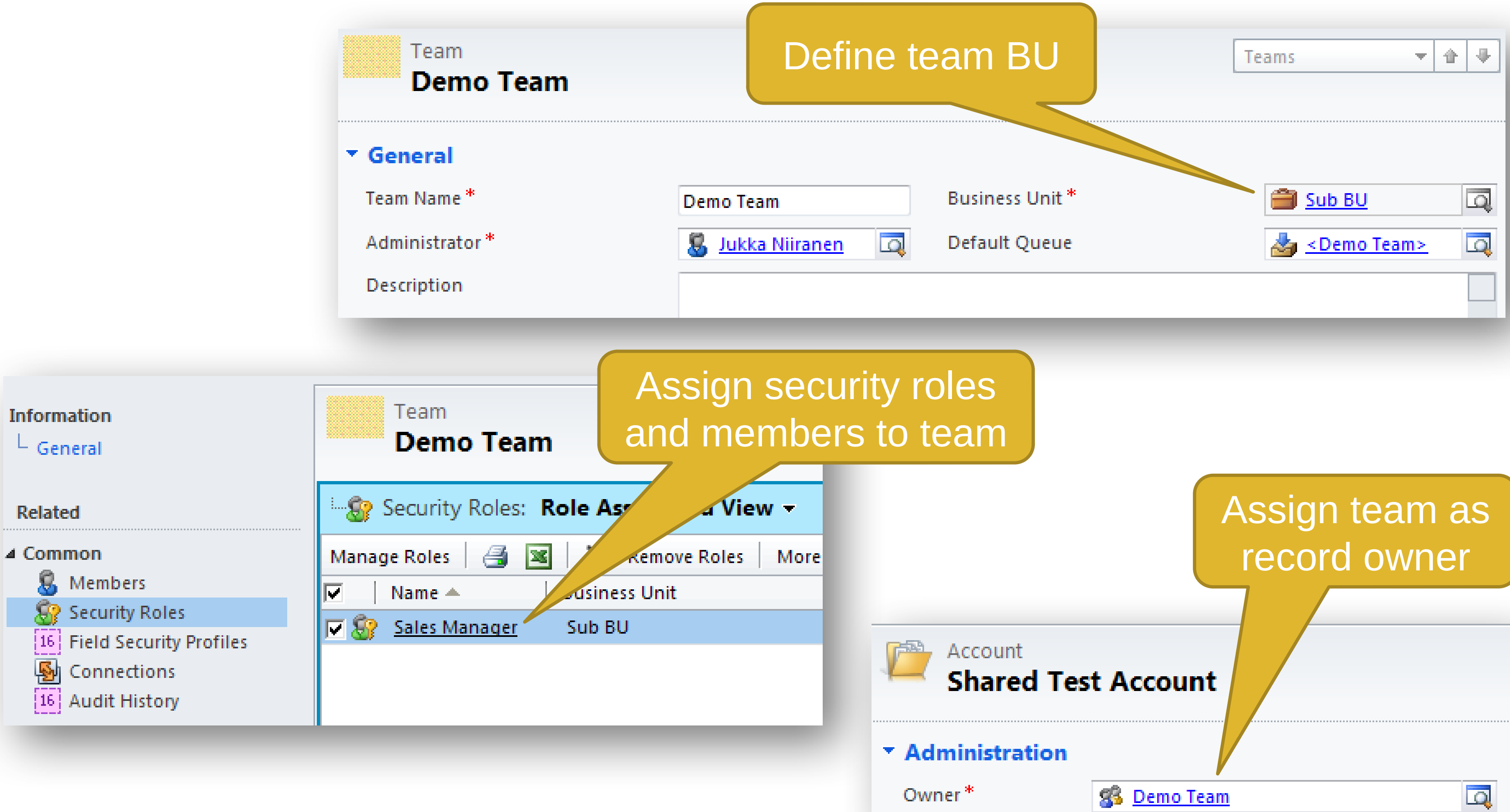
Team ownership



- New features:
  - Assign security roles to an entire team
  - Teams can own records
  - There is a default team for each business unit. All users in a business unit are members of this team
  - Access checks are **additive.** You can access entities based on the roles assigned to the user plus the roles assigned to the team a user is a member of. This allows a user to have privileges outside their business unit
  - Teams can be deleted

From Microsoft Dynamics CRM 2011 Beta SDK

Assigning records to teams



CRM Online enhancements

Code on the server

- Plug-in deployment to CRM Online allowed with isolated mode (sandbox)
  - Cannot access files, event log, network, etc.
- Custom workflow activities are not supported
- Plug-ins can consist of only a single assembly .dll
- Plug-in statistics available for monitoring the behavior of individual plug-ins in a hosted environment
  - Execution count, failure count, crash count

Custom applications

- Web Resources in solutions cannot execute code
- No support for .aspx pages, MS suggested solution is to host these pages on Azure
- Custom UI's could be built with HTML/jQuery or Silverlight, to allow packaging and distribution inside the solution file

Custom reports

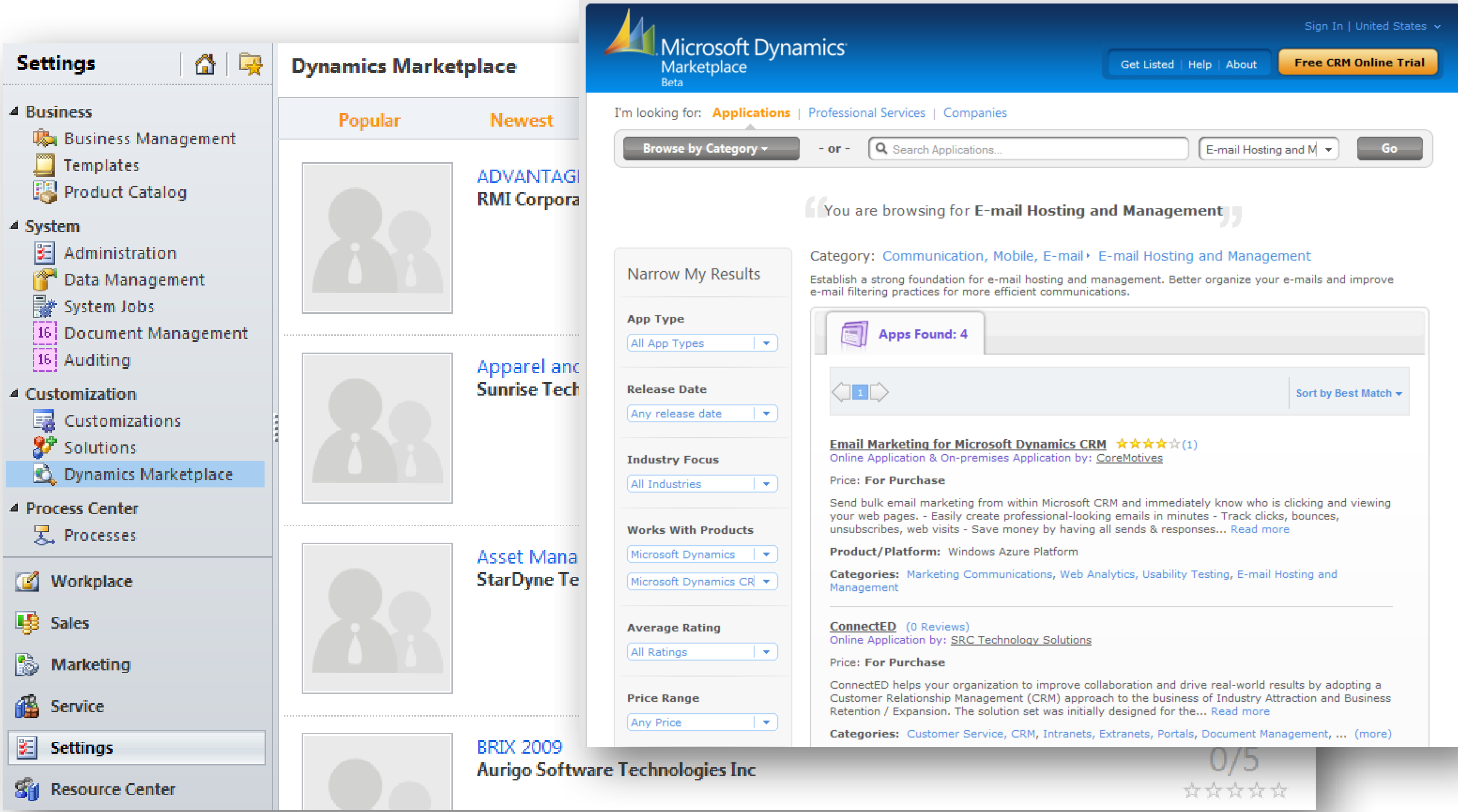
- Custom SSRS reports can be uploaded to CRM Online
- However, no direct access is allowed to database views = no SQL data sources can be used
- FetchXML will be the primary method for building custom reports for CRM Online
- Runtime component available for SSRS, Fetch Authoring Extension for VS
- See post on MS CRM Team Blog for details:
  - http://blogs.msdn.com/b/crm/archive/2010/10/19/getting-started-with-custom-reports-in-the-cloud.aspx

Dynamics Marketplace

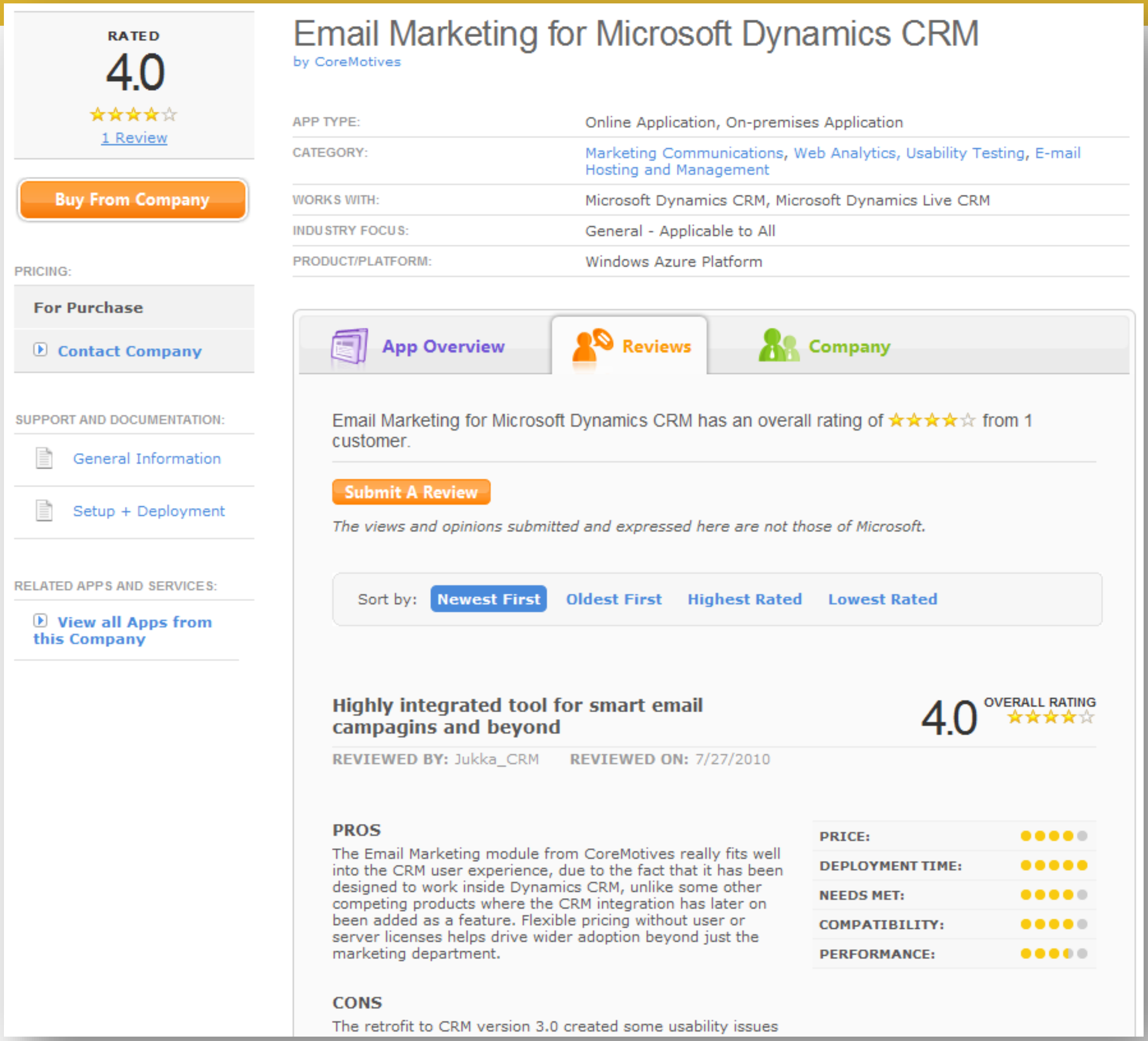
Marketplace features

- Integrated into the Settings menu in CRM
- Built on the existing Microsoft Pinpoint site
- Listings for add-on applications, professional services, hosting services
- CRM 2011 is not a requirement, thus available also for add-on applications that are not delivered as solution packages
- Initially no eCommerce functionality available for purchase and payment transactions

Marketplace in CRM



Marketplace listing contents



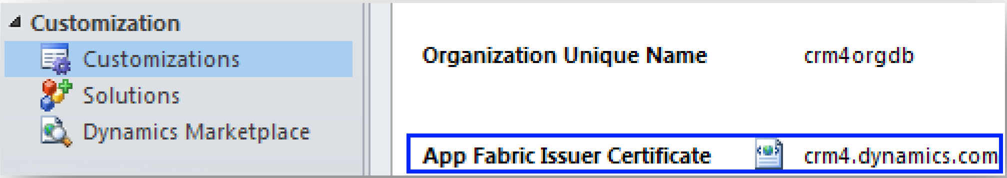
Listing requirements

- Two separate categories for applications:
  - Certified for Microsoft Dynamics (CfMD)
  - Community-rated solution
- Requirements for certified applications
  - Application must pass the CfMD software tests
  - 10 customer references
  - MS Gold Certified Partner status
  - Sure Step certification exam
  - Escrow service must be used for storing IP assets such as source code and documentation

Azure

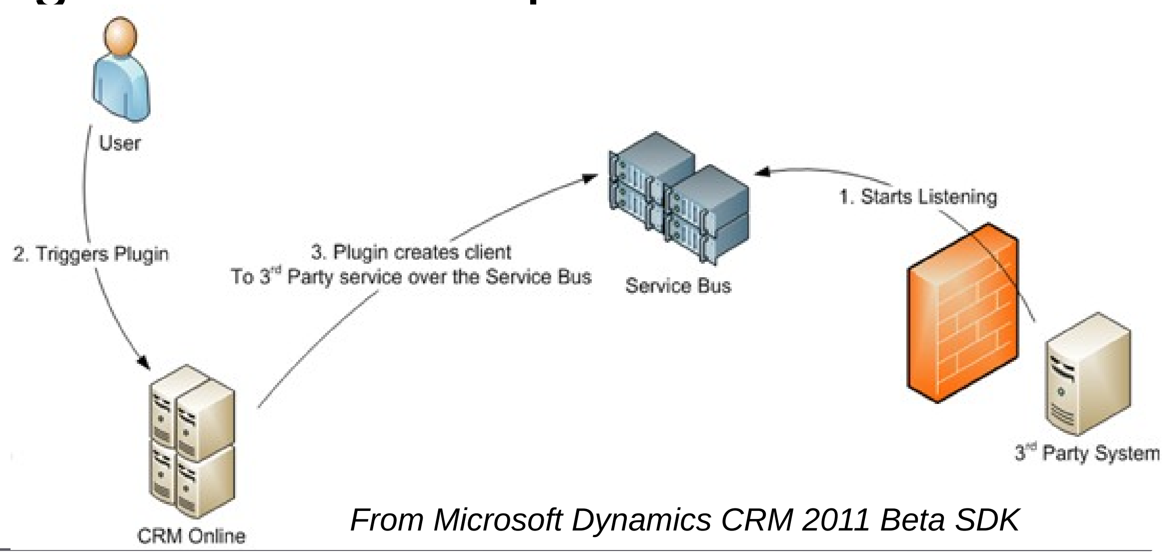
AppFabric

- Service Bus for messaging between applications
  - Bridges on-premises and cloud applications
  - Exposes applications through corporate firewalls
- Access Control Service for authentication
  - Windows Identity Foundation (WIF) integration
  - Supports OAuth, OpenID, Windows Live ID, Google, Facebook…
  - On-premises requires purchase of a private certificate, Online certificate available from MS



Integration through Service Bus

- CRM 2011 Online event execution pipeline has been exposed to AppFabric Service Bus
- Allows posting data processed in CRM events to Service Bus through a CRM plug-in
- Can be used for integration scenarios where CRM Online must exchange data with on-premises applications



From Microsoft Dynamics CRM 2011 Beta SDK

Upgrading

System requirements

- Server
  - Only 64-bit SQL and IIS servers are supported
  - Windows Server 2008, SQL Server 2008
  - Exchange 2003, 2007, 2010, Online (optional)
  - SharePoint 2007, 2010 (optional)
- Client
  - Office 2003 (SP3), 2007, 2010
  - Internet Explorer 7, 8 (Beta does not yet support IE9)
  - 32-bit or 64-bit

Upgrade paths

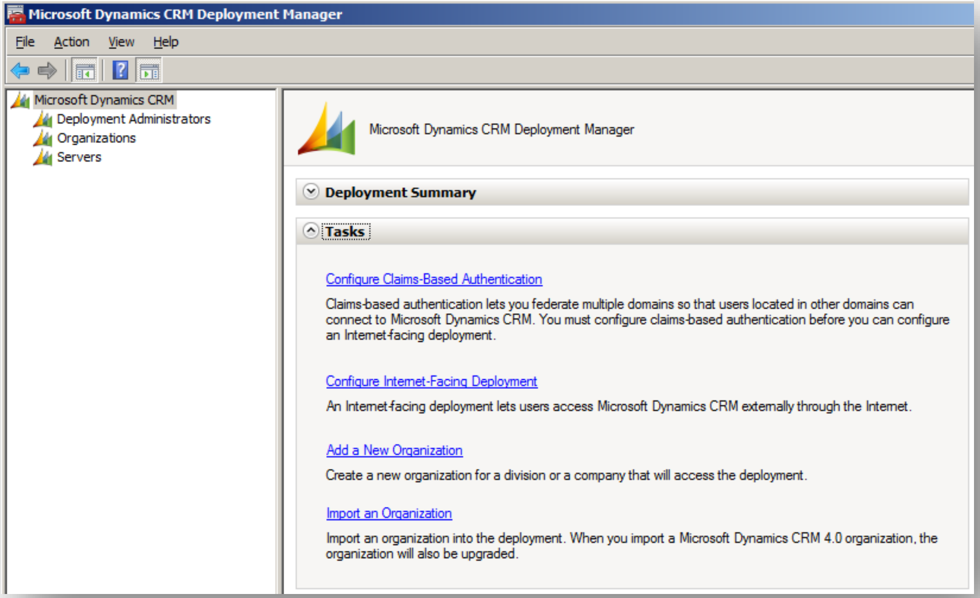
- Migration
  - Recommended option, allows import per organization
  - Old CRM4 instance can remain operational during upgrade
  - Separate SQL Server instances required
- Connect to existing
  - Install new CRM server, upgrade existing SQL database
- In-place
  - Most simple process, but old server environment must meet 2011 requirements
- CRM 3.0 environments must first be upgraded to CRM 4.0 (can use trial version)

Client upgrade

- CRM 4.0 Outlook clients (UR7+) are compatible with CRM 2011 server
- CRM 2011 clients are NOT compatible with CRM 4.0 server
- New client cannot be pre-deployed, client upgrades to be performed after server upgrade
- CRM 4.0 Offline client changes can be updated to CRM 2011 server, but Go Offline is not available for CRM 4.0 clients after server upgrade

CRM 4.0 / 2011 customizations

- You can’t directly import CRM 4.0 customizations into CRM 2011 system
- However, you can import a CRM 4.0 organization through the Deployment Manager



Accelerators

- New versions of the accelerators will be released, as stated by Microsoft
- However, unlikely to be available at CRM 2011 RTM/RTW
  - Latest estimate: 6 months after CRM 2011 RTW
- Upgrading an existing CRM 4.0 instance to CRM 2011 with the accelerator components installed may work, but there's no guarantee on functionality

Virtual machines for CRM 2011

- Everything is x64 now (IIS, SQL) = no more MS Virtual PC or MS Virtual Server images
- Hyper-V is an option if you’re running Windows Server 2008 on your PC
- If not, go for Oracle (Sun) VirtualBox
- Creating a virtual machine with VirtualBox:
  - http://crmscape.blogspot.com/2010/09/creating-ms-crm-2011-vm-part-1-of-2.html

Code compatibility

Web service

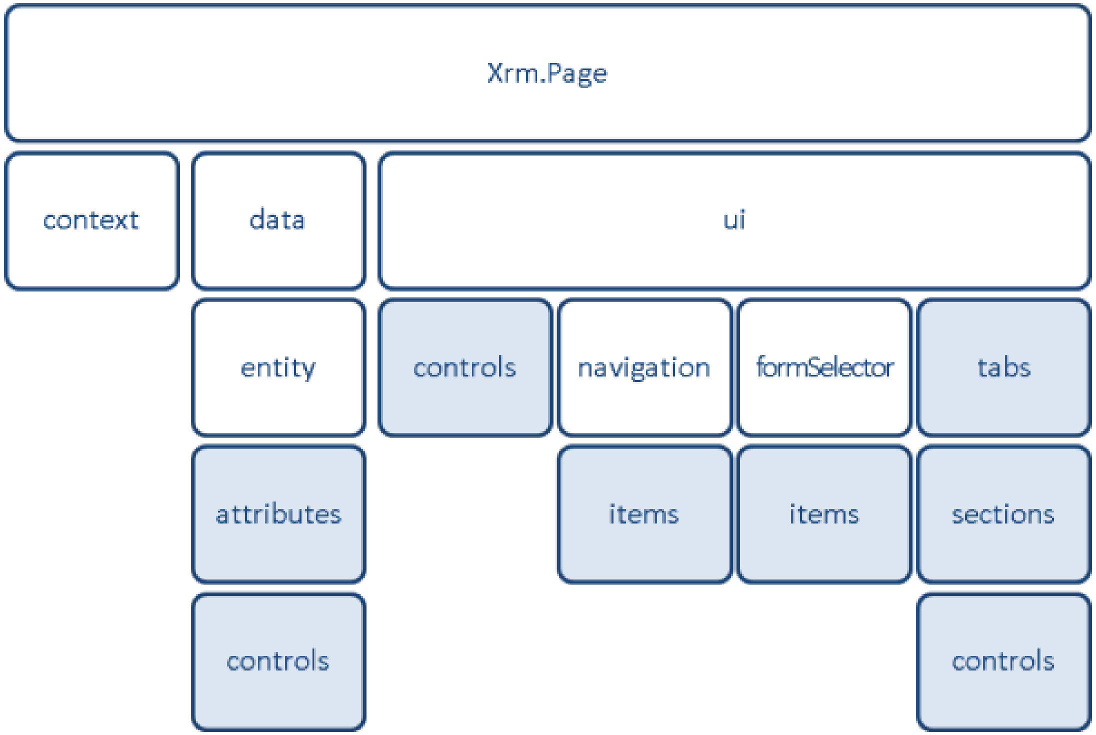
- CRM 4.0 web service endpoint (2007) is supported, CRM 3.0 (2006) is not available
- Web service authentication throuhg WCF

Plug-ins

- Sandbox (isolation mode) not available for CRM 4.0 plug-ins
- CRM 3.0 plug-ins (callouts) are not supported

crmForm object is deprecated

- Xrm.Page object is the new namespace
- crmForm backward compatibility but with limited features



From Microsoft Dynamics CRM 2011 Beta SDK

Form scripts

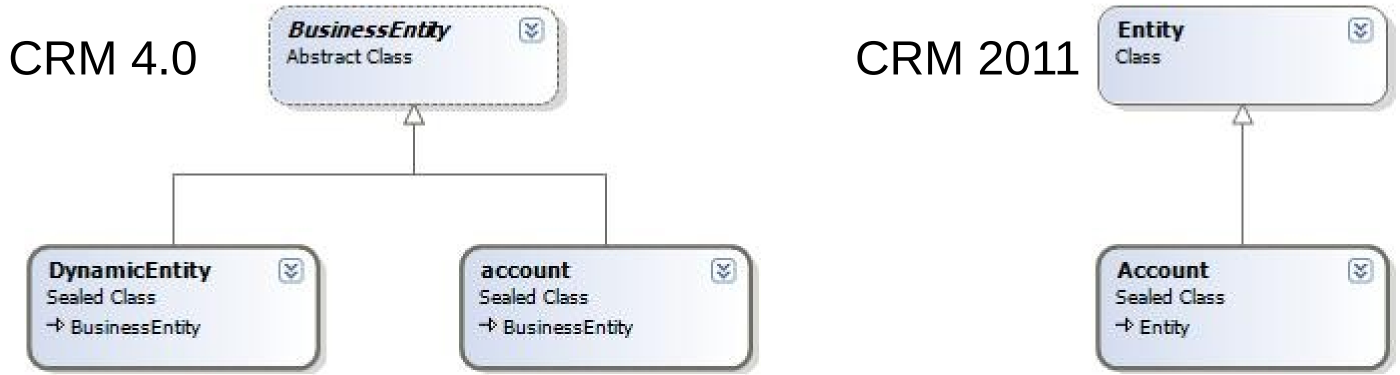
- Changes in the Client API scripting model and namespaces
  - Old: `var AccName = crmForm.all.name.DataValue`
  - New: `var AccName = Xrm.Page.getAttribute(”name”).getValue()`
- Javascript converter for CRM 4.0 scripts: http://crm2011scriptconvert.codeplex.com/
- During the upgrade from 4.0, old form scripts will be converted into .js Web Resources

ISV folder is deprecated

- Calling the 2011 Web services from the <crmwebroot>\ISV folder is no longer supported
- Custom ASPX pages in the ISV folder work after CRM 2011 if they meet the criteria listed in SDK

No more Dynamic Entity

- Dynamic Entity has been replaced with the base class Entity



From Microsoft Dynamics CRM 2011 Beta SDK

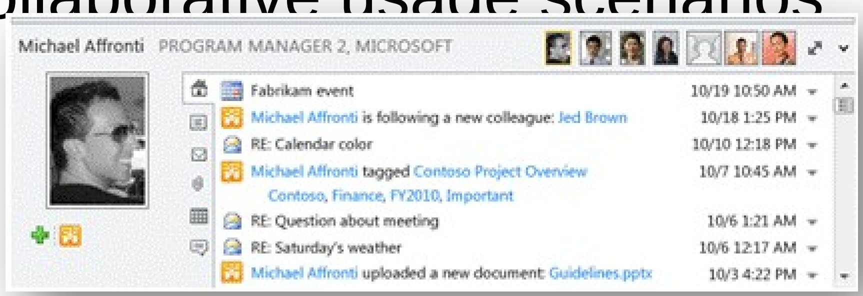
What's not there

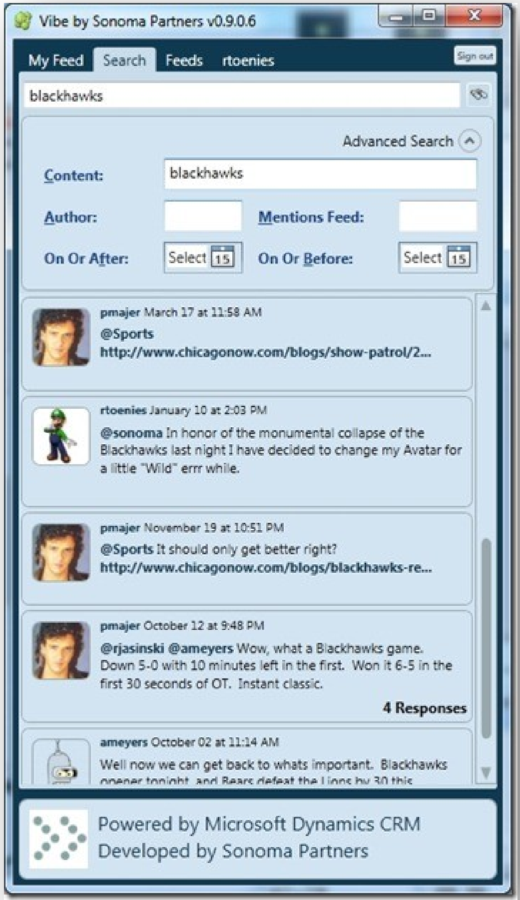
Search improvements

- No Outlook / Windows Search type of “global search” functionality for searching across different entities
- No “Google style” full text search for using multiple search terms in same search field
- Indexing CRM data with SharePoint through BDC (2007) / BCS (2010) can be used to overcome the search functionality limitations

Activity streams

- Microblogging á la Yammer or Salesforce.com Chatter is not a Dynamics CRM feature
- SharePoint 2010 activity streams are the closest match in Microsoft's portfolio, integration with CRM data and events could possibly bring more "Enterprise 2.0" flavor to Dynamics CRM in collaborative usage scenarios





Example of microblogging add-on for Dynamics CRM: Vibe by Sonoma Partners

Social media integration

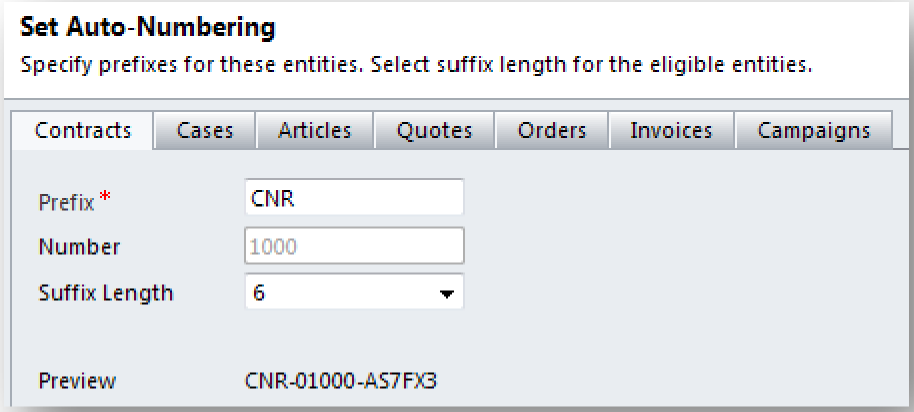
- Social CRM is a huge trend, but Microsoft has not included out-of-the-box connectivity to any social networks in Dynamics CRM 2011
- Outlook Social Connector does integrate with CRM Outlook client reading panes, but the data is purely inside the Outlook client, not trackable to the CRM database
- Updated Accelerators expected, will offer some level of social media integration
  - Current CRM 4.0 Accelerator was not updated after Twitter switched to OAuth in August…

Customer fields

- You can’t create a Customer field that would act in the same way as the fields on default entities like opportunities etc.
- However, creating a new custom activity entity automatically adds such a field
- Currently there is no supported way for limiting the existing customer fields’ entity types or setting defaults on the OOB entities
  - 4.0 scripts not compatible in 2011

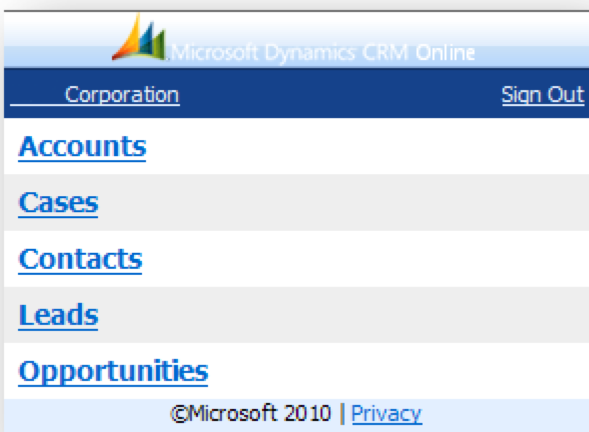
Auto-numbering

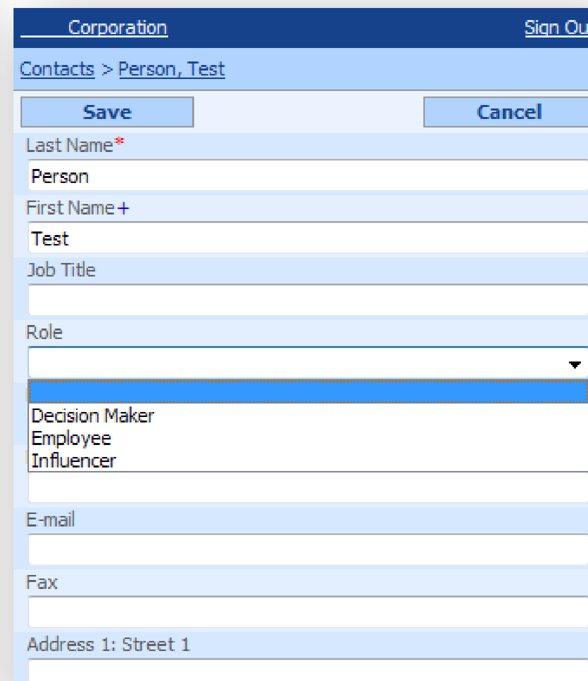
- Custom solutions still needed for providing numbering on most entities, such as accounts
- Open source solutions may emerge quickly, as this is such a common requirement & readily available in competing CRM products
- BTW: no calculated fields in CRM 2011 either



Mobile client enhancements

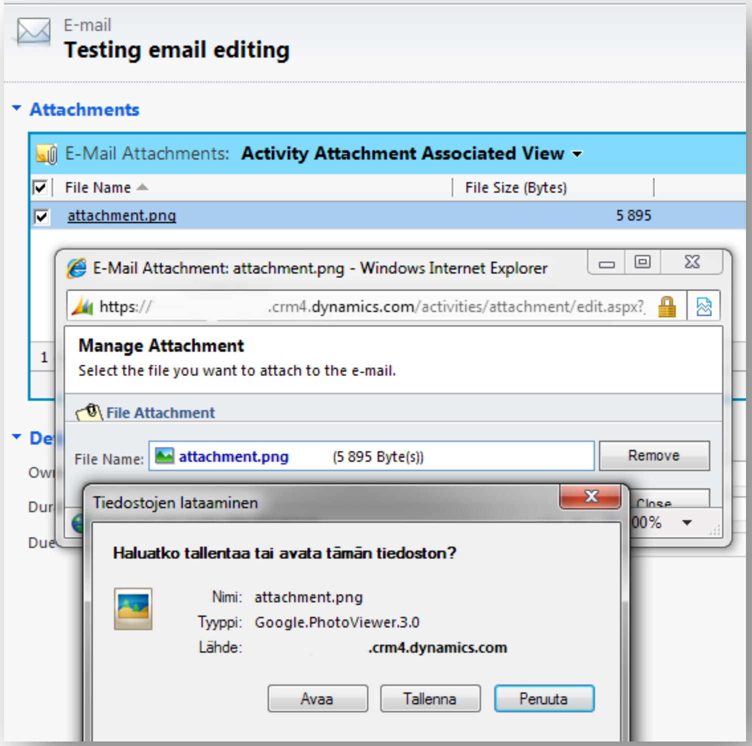
- As of CRM 2011 Beta, the Mobile Express client appears to have the exact same functionality as before
- Windows Phone 7 integration with CRM Online is expected to be announced, other platforms may need to rely on ISV client applications





Email editor enhancements

- As of CRM 2011 Beta, email editing experience in the web client remains the same as CRM 4.0
- No spell checker, user signatures, multiple attachment selection, attachment preview



Hyperlinks in workflow emails

- Feature for including hyperlinks to regarding records in workflow email body text was dropped from CRM 2011
- Custom workflow activities need to be developed for achieving the hyperlinking feature in workflows
  - However, CRM Online will not support custom workflow activities
- Other workarounds known previously, like storing GUID’s into entity attributes, can still be utilized

Follow-up activities

- As a result of the deprecation of form assistant, there is no longer a built-in functionality for creating a follow-up activity
- Custom solution could be built with the new Process Dialogs
- However, since Dialogs don’t support many field types (such as datetime), implementing identical functionality may be difficult

Thanks for viewing!

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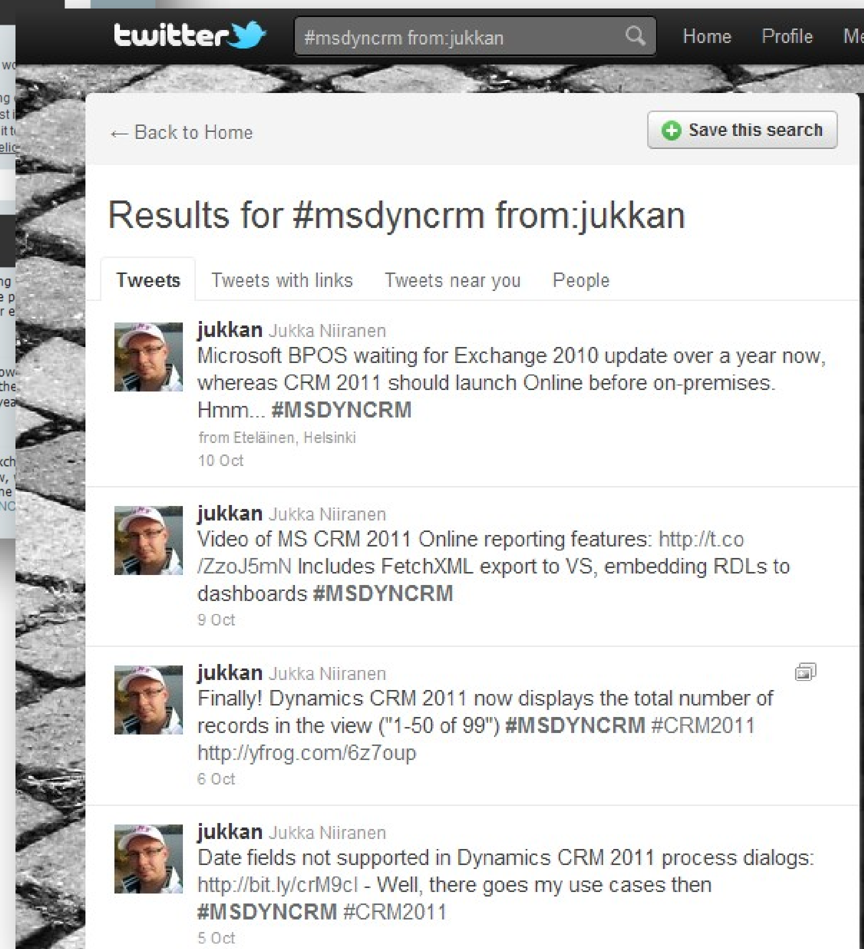

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